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# The Journal of Higher Education

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Vicki J. Rosser
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# Academic Deans and Directors: Assessing Their Effectiveness from Individual and Institutional Perspectives

Over the past decade, higher education institutions have been increasingly held accountable for measurable outcomes. Increases in competition for scarce resources and a decrease in the public's trust in higher education practices have resulted in demands for campuses to demonstrate their productivity, effectiveness, and efficiency. Institutions have responded with a variety of data about student enrollment trends, student retention and graduation rates, job and career placement, and faculty workload studies. The evaluation of administrators, another possible consideration, may well provide needed and appropriate information about institutional effectiveness, but it may also constitute a high stakes evaluation process for individuals (Heck, Johnsrud, & Rosser, 2000). The evaluation process may be tied to decisions about promotion, salary augmentation, contract renewal, or dismissal. In an evolving policymaking context that requires greater accountability in higher education, the particular need to ensure fair, accurate, and dependable evaluation for individuals and the institution is evident. The purpose of our study, therefore, is to present a systematic approach for evaluating the leadership effectiveness of deans and directors from individual and institutional perspectives.

An earlier version of this study was presented at the annual meeting of the Association for the Study of Higher Education, Sacramento, November, 2000.

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Academic deans and directors serve a critical institutional role. As academic leaders, they have the authority to chart where a college and its programs are headed (Mercer, 1997). By selecting which goals they choose to pursue (and which to forego) deans and directors have the potential to exert a tremendous influence on the direction of the unit (Twombly, 1992). They have the ability to control information, accumulate and allocate resources, and assess the performance and productivity of their faculty and staff. Deans serve as academic facilitators between presidential initiatives, faculty governance, and student needs (Astin & Scherrei, 1980). By virtue of their midlevel placement within the higher education organizational structure (Morris, 1981; Roaden, 1970), they are in the center of controversy, conflict, and debate; they play the role of coalition builder, negotiator, and facilitator.

Researchers have concluded that the deanship is a leadership role with overtones that are more political and social than hierarchical or technical (Dill, 1980; Gmelch et al., 1999). Deans must successfully work with a range of interests, individuals, and groups. Morris (1981) argues that deans' success is primarily measured by how well constituencies are stroked, cajoled, cultivated, and kept in line. Deans essentially serve two masters—the senior administration and the faculty–and are expected to bridge and join both perspectives. Although this balancing act is not unique in organizational life, there are features of the academic middle manager that are typically not found elsewhere. Within this organizational context, deans have been variously described as "doves of peace" intervening among warring factions, "dragons" holding internal and external threats at bay, and "diplomats" guiding and encouraging people who live and work in the college (Tucker & Bryan, 1991, p. ix).

Even though individual deans have achieved remarkable power and status, there are many signs pointing toward an ebbing of powers. Accountability has emerged as a dominant and influential social value that has changed the dean's work. The former vision of the dean as a scholarly leader has been replaced by an executive image of the dean as politically astute and economically savvy (Gmelch et al., 1999). For example, deans are increasingly being charged to lead their colleges' efforts to obtain external funding (Blair, 2000). The pressure to get more involved in development has shifted the traditional role of the dean as chiefly an academic-policy setter and the liaison between professors and the administration (Mercer, 1997) to entrepreneur and politician.

Although the performance of academic deans and directors is seen by many as pivotal to the success of individual units, their evaluation has been slow to develop and has not been guided by firmly established assessment practices that are systematic, fair, and accurate. Academic deans are most often deemed effective—or ineffective—by informal assessments of their leadership style, the performance of their duties and responsibilities, and even, at times, their individual traits or qualities. Understanding how deans are evaluated by others including senior administration, faculty, and staff is a relatively new and unstudied phenomena (Gmelch et al., 1999; Matczynski, Lasley & Haberman, 1989). Because of the importance of the evaluation process to the individual as well as the institution, our intent is to present a systematic approach for evaluating the leadership effectiveness of deans and directors, in this case emphasizing information collected from their faculty and staff. While faculty and staff perceptions about leadership effectiveness can be a valuable, efficient, and cost-effective source of information, it can be difficult to obtain valid and reliable information and to formulate all of this into unit-level indicators of these leadership processes. In presenting our evaluation model, we demonstrate the utility of multilevel structural equation modeling to examine the variance in faculty and staff assessments of effectiveness by contrasting the perspectives of individuals' assessments of their own dean with the university-wide perspective associated with the determination of the performance of the entire set of deans and directors.

## *Evaluating the Leadership Effectiveness of Deans*

Much previous research on deans or "deaning" has been primarily descriptive in nature and refers to specific tasks and challenges (Gould, 1964; Morris, 1981; Tucker & Bryan, 1991) and or the roles and functions of deans (Dibden, 1968; Dill, 1980; Griffiths & McCarty, 1980; Lasley & Haberman, 1987; Morris, 1981; Seldin, 1988; Tucker & Bryan, 1991). Authors have focused on specific topics such as their transition from research and teaching to academic management (Arter, 1981); their dilemmas in leadership (Cleveland, 1960; Gmelch et al., 1999); their position of conflict (Feltner & Goodsell, 1972); their management skills and mobility (Sagaria, 1988; Sagaria & Krotseng, 1986); their career paths (Moore et al., 1983); and their role in governance and decision making (Baldridge, 1971).

The nature of the dean's role and responsibilities can be viewed differently by faculty, provosts, students, and deans themselves (Gmelch et al., 1999). Academic vice presidents rely on deans to carry out the academic mission of their units. Tucker and Bryan (1991) contend that deans are constantly judged by their actions and reactions to the problems, opportunities, and challenges they face (p. 197). This impromptu evaluation of the quality of the dean's leadership is confirmed and reconfirmed over a period of several years of such interactions with senior administration (i.e., one-on-one, council meetings). The dean must also work with the faculty and staff within the college or academic unit. Faculty members are described as fiercely idiosyncratic and independent in their daily behavior. The nature of their work engenders a special pride in not being responsive to institutional rules and regulations (Morris, 1981). Thus, as Morris argues, the faculty represents a constituency that is almost purely political in character; that is, they cannot be commanded or led, except by the initiatives and cohesion of their own membership.

These differing perceptions of the role place multiple, conflicting, and more recently, consequential pressures on deans (Gmelch et al., 1999; Kapel & Dejnozka, 1979). Wolverton, Wolverton, and Gmelch (1999) found that role ambiguity (e.g., knowing job responsibilities, having clear goals for the job, knowing their authority, knowing senior administrators' expectations) had a small negative effect on deans' perceptions of their job satisfaction, effectiveness, and commitment to the institution. The suggestion is that the less well articulated the role is, the less effective deans perceive themselves to be. Wolverton and colleagues contend that senior administrators need to articulate clearly the job responsibilities, authority, goals, and expectations that go with the role, in order to assess the individual's effectiveness in performing identified role-related functions.

## *Developing a Perspective on Leadership Effectiveness*

One way to evaluate the leadership of deans and directors is with respect to the expectations of the role and the institutional purposes for evaluation (Heck, Johnsrud, & Rosser, 2000). Any number of different aspects of the role could potentially be evaluated including performance (e.g., on-the-job behavior), cognitive processes (e.g., ability to solve problems or make appropriate decisions), or effectiveness (e.g., results-oriented activities such as increasing resources, improving the quality of programs). Effectiveness is a pertinent criterion when the evaluation purpose is to hold individuals accountable for certain types of results. Institutions may develop a number of specific purposes for evaluation including improving performance, affording opportunities for professional development, or granting a merit pay increase. Institutions may also wish to demonstrate to their external stakeholders that their administrators as a group are effective. Such a purpose requires a set of common criteria that is appropriate to each member of the group as well as a means to assess the criteria across a number of administrators, each functioning within a specific unit-level context.

Adding to the challenge of defining a set of evaluation criteria, however, are the lack of a commonly accepted definition of what leadership effectiveness in higher education is and a measure of agreement about which aspects of leadership may be most important to assess in order to evaluate performance in various administrative roles (Bensimon, Neumann, & Birnbaum, 1989; Birnbaum, 1992; Dill, 1984; Fincher, 1996; Bensimon & Neuman, 1993; Whetten & Cameron, 1985). Fincher (1996) argues that leadership effectiveness in higher education is mostly a matter of perception. Individual perceptions of effectiveness are based on what leaders are perceived to have accomplished; that is, perceptions are grounded in the individual's experience with the leader's behavior, either directly or indirectly. From these experiences, individuals determine whether they believe leaders are effective or ineffective (Birnbaum, 1989; Fincher, 1996; Whetten & Cameron, 1985). Such perceptions are then crucial to the viability of the leader's position within the institution.

The varied view on the dean's role suggests that no single evaluation model is likely to include all of the important responsibilities, skills, or results associated with the leadership of deans and directors. Leadership in organizational contexts is complex and multidimensional (Yukl, 1989, 1993). That complexity has attracted scholars from a variety of disciplines who bring contrasting conceptualizations of leadership and the assessment of its effectiveness. Theorists in psychology tend to focus on the individual and view leadership as an outcome of managerial effectiveness, success in influencing people, and developing commitment to task objectives (Yukl, 1989). Chemers (1993) argues that leadership is a process of social influence, and "effective" leadership is the successful application of the influence to mission accomplishment. From this perspective, it follows that effective leaders are able to obtain the cooperation of other people and to harness the resources provided by that cooperation to attain organizational goals.

A more sociological perspective conceives of leadership effectiveness as the degree of success with which a group performs its primary assigned task (Bryman, 1986; Fiedler & Garcia, 1987). Hollander (1964, 1978, 1993) suggests that the process involves two-way influence aimed primarily at attaining mutual goals, such as those of a group, organization, or society. Followers are responsive to what leaders say and do, and leaders are responsive to followers. Accordingly, leader effectiveness depends upon an equity in social exchange with the leader gaining status and exercising influence while helping the group to achieve desired mutual outcomes, as well as the individual leader achieving social rewards, such as recognition (Hollander, 1964, 1978). Hollander contends that this social exchange, or transactional approach to effective leadership, involves a trading of benefits.

Transactional social exchange provides one way of thinking about

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how leadership is negotiated as a mutual and reciprocal process between deans and the various members of their academic units as well as their superiors—a process that responds to the mutual needs and wants of both leaders and followers. Social exchange processes help coordinate the work of highly educated professionals—those who are not likely to be led. The implicit relational qualities of the transactions that take place contribute to the development of perceptions of leadership effectiveness (Hollander, 1964, 1978; Hollander & Julian, 1969, 1970). Because the nature of the transactions differ by the relationships among the individuals involved in the exchange process, perceptions of effectiveness may vary due to the organizational roles of the evaluators. For example, Lasley and Haberman (1987) found that when Vice Presidents or Vice Chancellors of Academic Affairs were asked to evaluate the criteria necessary to be successful as deans (i.e., in the field of education), they responded by saying that the success or failure of a dean is related to several factors including economic resources, faculty expertise, and social circumstances.

In contrast to the perspectives of superiors in describing criteria needed for success as a dean, this study focuses on the exchange process between deans and their faculty and staff members. Descriptive studies have also examined faculty perceptions of the dean's role. Matczynski, Lasley, and Haberman (1989) found that faculty ranked communication as the most important quality of deans and affirmative action support as the least important. Faculty members supported deans who exhibited a capacity to articulate the unit's mission and to define the purposes of the unit and the major issues of the profession to various constituencies. Faculty members also felt that deans should be held accountable for the academic standards of the unit. They expected deans to recruit a high quality faculty and to ensure that faculty members maintain high academic standards in their classrooms. One measure of the effective dean is the respect and confidence of the faculty (Gould, 1964).

### *Modeling Leadership Effectiveness of Deans*

While previous research has identified several important criteria involving exchanges between deans and senior administrators and between deans and their faculty and staff, further research is needed to assess the role-related performance of deans systematically. Overall, the most important aspect of any assessment of performance is the interpretation of the observations made in light of the theoretical grounding of the model tested and the methods employed to test the model (Heck & Marcoulides, 1992). This process relates to the validity and confidence we can place in the observations. More specifically, if we intend to measure the effectiveness of deans and directors in leading their units, we have to be confident that we are measuring relevant aspects of leadership in light of our evaluation purposes. Thus, for each administrator to be evaluated, decisions must also be made about who has relevant information (e.g., faculty, staff, senior administrators, alumni, the surrounding community) that should be considered in assessing his or her effectiveness. What constituent groups want from a leader may well differ, and what a given group wants may differ by context. In other words, the faculty members in the College of Arts and Sciences may have different priorities for their dean from the priorities of faculty members in the College of Business or in the College of Engineering. What is valued as effective leadership may differ by the nature and context of the academic unit.

Construct validity is the most general of the various approaches to validity and occurs when a set of operations is evaluated in light of a specified construct, such as leadership, or set of theoretical relations (National Council on Measurement in Education, 1985). In our study, we first set out to describe and measure several domains of leadership that would serve as central criteria for the evaluation purposes within the institution we studied. The specific domains and criteria selected included articulating a vision for the unit and setting appropriate goals, managing the unit, having high quality interpersonal relationships, possessing strong communication skills, contributing to research and professional endeavors of the unit, building the overall quality of the unit's educational processes, and providing support for the institutional goal of increasing diversity. The centrality of these specific domains has been supported in research on leadership in higher education administration generally (Astin & Scherrei, 1980; Bensimon, Neumann, & Birnbaum, 1989; Birnbaum, 1992; Dill, 1984; Bensimon & Neuman, 1993; Seldin, 1988; Whetten & Cameron, 1985), and on the leadership of deans more specifically (Cleveland, 1960; Dibden, 1968; Dill, 1980; Feltner & Goodsell, 1972; Griffiths & McCarty, 1980; Gould, 1964; Matczynski, Lasley, & Haberman, 1989; Morris, 1981; Sagaria & Krotseng, 1986; Seldin, 1988; Tucker & Bryan, 1991).

Besides defining the relevant dimensions of leadership, we also needed to incorporate the multilevel nature of higher education institutions into our evaluation model. This step also is important in establishing the construct validity of the proposed model. In our model, having faculty and staff assess their dean's leadership results in a type of clustered sampling; that is, faculty and staff are situated within colleges or other subunits. As opposed to collecting information from senior administrators in the institution, who typically evaluate a number of deans, in our study faculty members and staff evaluate only their own dean. This necessitates a more complex, and nested evaluation design for the assessment of the leadership of deans. The clustering of individuals within organizational units produces pockets of similarity among the individuals within each unit. When observations are clustered, ignoring the correlated observations within each unit can produce incorrect assessments (Muthén, 1994); that is, the evaluation of any one dean may be higher or lower after the effects of their particular context (e.g., faculty socialization processes, faculty priorities regarding the leadership of deans) are removed.

In light of the conceptual and methodological problems previously identified in examining leadership in higher education, our multilevel evaluation approach examines how the evaluation of the leadership effectiveness of deans may be affected by the clustered nature of the assessments. The aim of multilevel modeling is to analyze data from different levels of the organization simultaneously (Johnsrud, Heck, & Rosser, 2000). We attempted to examine variation in leadership effectiveness of deans at two levels of analysis summarized in Figure 1. First, we assumed there would be within-unit variation in how faculty and staff viewed the dean's leadership effectiveness across the several specific leadership domains. Second, after adjusting for these clustering effects, we examined differences in leadership effectiveness among the set of deans and directors and also preliminarily explored whether group-level variables (e.g., amounts of resources, size and type of unit) would affect the variation in leadership effectiveness observed among the set of administrators.

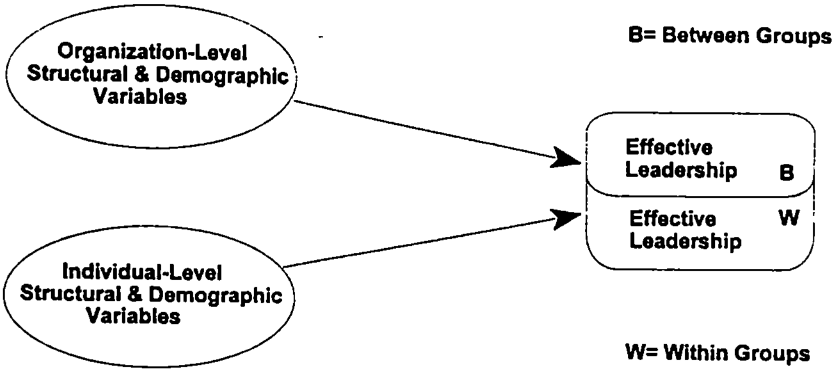
Organization-Level Structural & Demographic Variables
B= Between Groups
Effective Leadership B
Effective Leadership W
Individual-Level Structural & Demographic Variables
W= Within Groups

FIG. 1. The Proposed Multilevel Model

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## *Method*

### *Sample*

The data for this study were collected at a Carnegie Doctoral/Research-Extensive university located in the western United States. This institution is the flagship campus within a multiple campus university system. There are approximately 17,300 students attending the university, and over 3,800 faculty and staff members are employed on the campus. Sixteen of the academic deans and directors evaluated were males and six were females. Moreover, six of the deans and directors were minority males, and two were minority females. Overall, therefore, 36% of the deans were members of minority groups. The deans managed units of varying sizes and academic types (e.g., units within arts and sciences, professional schools, organized research groups, and service and support units). In a few cases, support units were run by directors. Only those directors who held positions equivalent to deans and who reported directly to vice-presidents were included in this sample.

To evaluate the leadership effectiveness of deans, surveys were mailed to all 1,950 faculty and staff members reporting to the 22 deans and directors. Three mailings yielded 865 usable responses from the faculty and administrative staff (a 54% return rate) of the deans. A comparison between the faculty and administrative staff respondents in this study and the larger population of employees indicated that the returns proportionately represented the demographic populations of the institution (University Faculty and Staff Report, Fall 1999). Faculty members were classified as instructors, researchers, specialists, and librarians. The administrative staff consisted of the executive/managerial staff, administrative, professional and technical staff, and clerical/secretarial employees of the deans.

Of the respondents, 405 (47.3%) were female and 451 (52.7%) were male. Their position categories consisted of 68 (7.9%) instructors, 116 (13.4%) assistant professors, 128 (14.8%) associate professors, 243 (28.1%) full professors, 15 (1.7%) managerial/executives, 150 (17.3%) administrative, professional, and technical staff, and 89 (10.3%) clerical/secretarial or civil service employees. Three hundred and eighty-three (44.3%) faculty and staff were classified as minority (i.e., African American, Chinese, Filipino, Japanese, Korean, Native American, Pacific Islander, and mixed/other) and 456 (52.7%) were classified as non-minority (Caucasian). The ethnic composition in the study, therefore, is one demographic difference to keep in mind when interpreting and generalizing the results of this study. More specifically, the percentage of minority deans and directors, as well as the percentage of minority faculty and staff (i.e., roughly 30–40%), are considerably higher than in most other Doctoral/Research-Extensive institutions. Although the ethnic composition is a major difference between this institution and many others, this should not be viewed as a major limitation, because the goal of the study is to examine differences between deans after controlling faculty and staff composition factors.

### *Instrumentation and Variables*

The instrument was designed to gather information about the effectiveness of deans in fulfilling their leadership roles and responsibilities as perceived by their faculty and administrative staff. In developing the instrument, there was extensive consultation between all deans and a university-wide committee (consisting of deans, faculty members, administrative staff, and senior administrators). The instrument was sent to all deans for their review and comment and modified as to incorporate suggestions of the deans. Finally, the survey was pilot tested on a subset of the deans by a committee consisting of faculty members and administrators.

#### *Leadership domains*

Seven domains of leadership responsibility were agreed upon by the committee based on the professional literature on deans and a review of existing evaluation instruments. These domains included *vision and goal setting* (Visgoal), *management of the unit* (Mgmt), *interpersonal relationships* (Interp), *communication skills* (Comm), *research, professional, and community endeavors* (Resear), *quality of the unit's education* (Quality), and *support for institutional diversity* (Diverse). The seven domains were defined by a total of 58 Likert-type items (see Appendix I). A response of "1" indicated the respondent had an unsatisfactory perception of the performance of the dean on that item, and a response of "5" indicated an outstanding level of performance on that item. A choice of either NA (not applicable) or DK (don't know) was also available as a response to each item. Each leadership domain, therefore, was defined by a series of items. All leadership domains were judged to be highly reliable, with Cronbach's alpha coefficients (i.e., a measure of internal consistency) above 0.9.

#### *Demographic and structural variables*

Demographic characteristics of those evaluating the leadership effectiveness of deans were also collected. The variables included sex, minority status, and years worked with the dean. Individual-level structural variables included organizational role (department chair, faculty, or staff), faculty rank (instructors, assistants, associates, and full professors) and staff member position. Categorical variables were dummy coded (e.g., females = 1 and males = 0).

Group-level structural variables included the amount of external resources the unit accumulated (Resources), the size of the unit measured in faculty and staff FTEs (Size of Unit), and the type of group unit (e.g., professional schools, organized research, arts and sciences). In preliminary models we found that instructional dollars or non-instructional dollars and type of unit were unrelated to leadership differences, so we eliminated these variables from the final model. Background variables about the deans included their sex (Female Dean) and the number of years they had been a dean (also eliminated from the final model).

### *Results*

First, we present descriptive information about the measures of deans' leadership effectiveness in Table 1. The within-group means suggest that as a group (*N*=865) faculty and staff believe the deans are relatively high in effectiveness (with means ranging from 3.83 to 4.05). While these means suggest "above average" performance, they do not reveal the extent to which similarities among individuals' perceptions due to clustering effects may affect the observations. The intraclass correlations (ICC) in Table 1 describe the percentage of the total variance in each leadership domain that is associated with clustering effects.[1] Larger coefficients suggest greater similarities in perception among members within each unit. If the coefficients were all small (e.g., less than 0.05), there would be little need for a multilevel analysis. The ICCs indicate relatively greater similarity in how the respondents view the leadership of deans in research/professional endeavors (0.159), management of the unit (0.157), and interpersonal skills (0.128). In contrast, less similarity in the perceptions of the respondents is associated with the dean's vision and goal setting (0.099), communication skills (0.091), the quality of education within the unit (0.068), and the dean's support for institutional diversity (0.091).

Also shown in Table 1 are the between-group means. The between-group means are adjusted for the effects of clustering associated with the within-group measurements. Notice that compared with the within-group observations (based on an *N* of 865), there is much less variation in leadership between deans (based on an *N* of 22), which is shown by the much smaller standard deviations. Although the between-group means have been adjusted for the effects of clustering, neither the within-group nor the between-group means are adjusted for errors asso-

TABLE 1
Within- and Between-Group Means, Standard Deviations, and Intraclass Correlations (ICC)

| Leadership Variables | Within Groups (*N* = 856) | | Between Groups (*N* = 22) | | ICC |
|---|---|---|---|---|---|
| | $\bar{x}$ | *SD* | $\bar{x}$ | *SD* | |
| Vision and goal setting | 3.87 | 0.95 | 3.60 | 0.06 | 0.099 |
| Management of the Unit | 3.83 | 0.92 | 3.56 | 0.15 | 0.157 |
| Interpersonal Relationships | 3.91 | 0.90 | 3.67 | 0.15 | 0.128 |
| Communications Skills | 4.05 | 0.79 | 3.83 | 0.10 | 0.092 |
| Research/Professional/Community/ Campus Endeavors | 3.89 | 0.70 | 3.63 | 0.14 | 0.159 |
| Quality of Education | 3.86 | 0.84 | 3.65 | 0.04 | 0.068 |
| Support for Institutional Diversity | 4.00 | 0.77 | 3.80 | 0.11 | 0.091 |

ciated with the measurement of each domain. Incorporating measurement error into the analysis both within and between groups requires a multilevel definition of the leadership construct.

### *Testing a Multilevel Model of Leadership Effectiveness*

Underlying constructs such as leadership effectiveness must be defined in terms of a set of observed indicators using factor analysis. Until recently, however, the factor analysis of organizational data has routinely ignored the multilevel character of the data (Muthén, 1994). The next step of our analysis involves confirming whether leadership effectiveness can be defined as a multilevel construct consisting of the seven observed domains, and if so, investigating the extent to which various background and organizational variables might influence the assessment of leadership effectiveness. One important advantage of defining a multilevel evaluation model of leadership effectiveness is that we can adjust for differences associated with the similarity in perception among members of each unit on the observed measures (i.e., the differing intraclass correlations). When individuals are clustered in units, the necessary assumption of independent observations required for such an analysis may be violated. More specifically, the range of intraclass correlations (i.e., 0.07 to 0.16) across the leadership domains suggests the presence of differing clustering effects associated with each of the domains used to define leadership.

A second advantage is that we can correct the observed measures for measurement error (i.e., error associated with defining the factors through the observed indicators). Thus, defining leadership effectiveness as a multilevel construct provides information that would result from perfectly reliable measures (Muthén, 1994). Moreover, these adjustments for similarity of views within units and for measurement errors in defining leadership effectiveness as a multilevel construct result in more accurate estimates of the possible impact of the various background and organizational variables on leadership effectiveness. This examination can provide important evidence about the model's construct validity and ensure that valid and reliable data are used in assessing the effectiveness of the leadership of deans.

The validity of proposed multilevel model was examined with *Mplus 2.01* (Muthén & Muthén, 2001).[2] In the multilevel approach to structural equation modeling (SEM), one covariance matrix is formulated to describe the within-group variation in leadership and another covariance matrix is formulated to describe the between-group variation in the parameters of the within-group model. Through the simultaneous testing provided by multilevel SEM, we can examine the characteristics of within-group and between-group variables on perceptions of leadership effectiveness.[3]

Currently, there are limited statistical criteria available for examining the fit of a multilevel structural model with unbalanced group sizes. The chi-square ($\chi^2$) is an inferential index that represents a test statistic of the fit of the model and is used when testing the null hypothesis that the proposed model fits the analyzed covariance matrix perfectly (Raykov & Marcoulides, 2000, p. 36). For this model, the $\chi^2$ was 860.039 (87 *df*), which was significant ($p$=0.000). While this chi-square is a bit large (partly due to the effects of sample size), the other fit indices suggested a good fit of the model to the data.[4] For our exploratory purposes, therefore, we accepted that the model fit the data adequately (e.g., see Muthén, 1994). While we could find better fitting models, we chose to present our results based only on the model that we originally hypothesized.

The parameter estimates summarized in Figure 2 indicate that all seven domains contribute significantly to the measurement of the dean's leadership effectiveness, both within and between groups. The parameter estimates describing the relationship between each domain and the leadership effectiveness factor were all sizable and significant[5] both within groups (i.e., with loadings ranging from 0.73 to 0.95) and between groups (i.e., loadings ranging from 0.93 to 0.99). Because the loadings were relatively high, the corresponding errors of measurement associated with each leadership domain were generally small. The errors associated with each leadership domain (not tabled) ranged from 0.10 to 0.47 within groups and from 0.01 to 0.14 between groups. This information suggests that the seven domains defined the leadership effectiveness construct quite well.

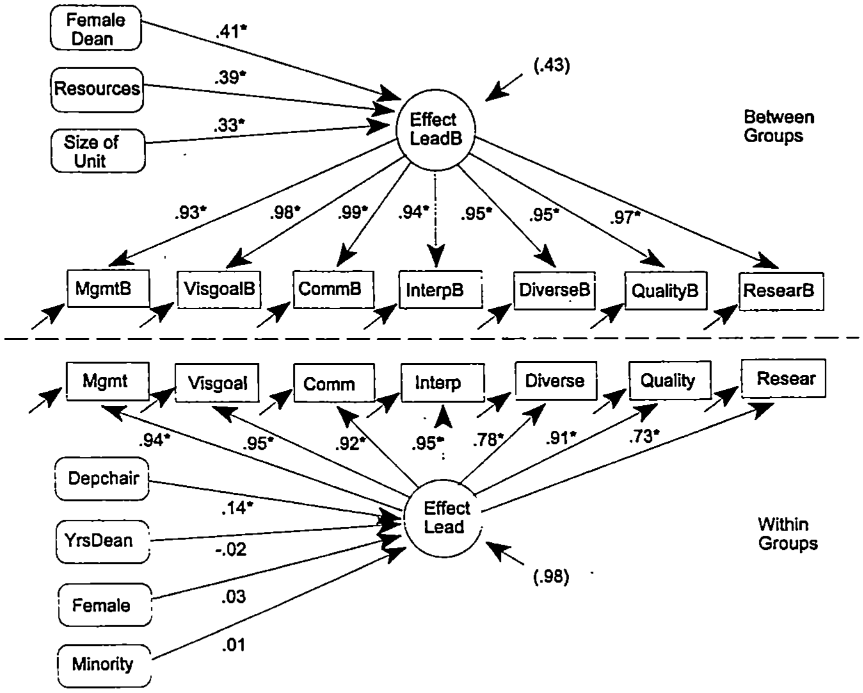

FIG. 2. Multilevel Structural Model of Effective Leadership (*Mplus* Standardized Estimates). Note: *Estimate is significant at $p < 0.05$

We can also determine the amount of variance in the leadership effectiveness construct that lies between groups. The intraclass correlation for the leadership effectiveness construct corresponds to the true difference in leadership effectiveness across the set of deans, after adjusting for other sources of variability (e.g., differences in how individuals evaluated their own deans, differences in similarities among individuals across the leadership domains). In this case, the actual difference in leadership effectiveness across the sample of deans and directors was about 13% (not tabled).[6] This ICC coefficient represents the adjustment for the individual-level unreliability associated with the seven observed domains used to measure leadership effectiveness (e.g., ICCs that ranged from 0.07 to 0.17).

The relatively small ICC associated with the leadership effectiveness construct suggests that after adjusting for clustering effects and measurement error associated with each leadership indicator, the difference in leadership effectiveness among the set of individual deans and directors is relatively small. Because within-group measurement errors are usually larger, without defining a multilevel model the true between-group variation in leadership effectiveness would be underestimated (Muthén, 1994). The methodological advantage of multilevel modeling is that the sources of error are removed from the analysis before considering the differences in leadership that exist among the set of deans in the study. This improves the reliability and validity of inferences made about the assessments (Heck, Johnsrud, & Rosser, 2000).

The result of our between-group investigation of the quality of leadership measurement can be viewed as "good news" from the perspective of senior administrators, because it suggests that all of the deans and directors are preforming relatively effectively as viewed by their faculty and staff. Further information about the leadership effectiveness of deans can be obtained by examining whether various background and organizational variables may explain variation in perceptions of the leadership effectiveness of deans. This information can further our understanding of possible biases in the assessments due to individuals' backgrounds, as well as help identify group-level variables that might explain differences in leadership effectiveness. Within groups, the background variables of those providing the assessments (e.g., gender, ethnic background, years of experience working with the dean or director) should not impact the assessments, assuming that these are not variables related to perceptions of effectiveness. For this set of within-group variables, we found that only the organizational role of the individuals had a small, but significant, impact on their perceptions of leadership effectiveness. More specifically, department chairs (Depchair) viewed the leadership of deans and directors in more positive terms (0.14, $p < 0.05$). The other individual demographic variables did not affect the evaluation of leadership effectiveness (i.e., years with dean or director = -0.02, female = 0.03, minority = 0.01).

For our evaluation model, therefore, it is encouraging that individuals' backgrounds do not systematically bias their assessments of the leadership effectiveness of deans and directors. More specifically, the within-group background variables account for only 2% of the within-group variation in leadership effectiveness (with 98% resulting from other sources as summarized in Figure 2). Certain groups are not experiencing the behavior of deans and directors differently in any systematic way; that is, we can assume that women or other under-represented minorities are not perceiving leadership effectiveness differently based on their experiences. One caution, however, is that this finding may be related to the specific nature of the institution we studied, in that there are relatively large numbers of minority individuals serving as deans and also represented as evaluators within the specific units. The bad news is that for this type of evaluation design (i.e., where individuals assess only their own dean) there is substantial within-group variation (i.e., which we define as error) associated with how individuals assess their dean's leadership performance. Fortunately, however, our multilevel evaluation model allows us to separate these within-group errors out before we examine differences in leadership effectiveness between deans.

At the group level, we can identify variables that explain differences in the leadership effectiveness of deans. Because of the small sample size of our study at the group level (i.e., 22 deans and directors), however, we must exercise caution in interpreting the results in this portion of the analysis. With this caution in mind, we found that the level of external resources associated with the unit (0.39, $p < 0.05$) and the size of the unit (0.33, $p < 0.05$) were significantly related to differences in perceptions of leadership effectiveness. The level of external resources of the unit is one variable we might expect to account for differences in leadership effectiveness. For example, deans are increasingly expected to help their units acquire external funds. It may be that larger units are also able to accrue more external resources. The between-group variables accounted for 57% of the variation in leadership effectiveness between deans (unaccounted variance, or errors in equations, is represented in Figure 2 as 43%). Of course, the amount of variance accounted for is likely inflated because of the small sample size.

In preliminary analyses, we found no significant effect of instructional and non-instructional dollars allocated to the unit or type of group unit (e.g., organized research groups, professional schools) to explain differences in the leadership effectiveness of deans. Although we might expect these latter types of resources to be related to the perception of effectiveness, it may be that deans are not perceived to have the same amount of control over these funds. We note in passing that the sex of the dean (i.e., female deans) was associated with higher faculty and staff perceptions of leadership effectiveness (0.41, $p < 0.05$) in this institution.

While the between-group sample size was small for a multilevel SEM analysis, the overall adequacy of the model provides preliminary support for its construct validity in evaluating the leadership effectiveness of deans and directors. The findings suggest that while the perceptions of leadership effectiveness are primarily individually held, owing to the greater range of individual perceptions about assessing their dean's leadership effectiveness, there is also a "collective" element, or group similarity, to these views that may also be important to consider in assessing the leadership of deans. More specifically, after separating out differences due to individuals' varied perceptions in rating their own dean, some deans may be considered more effective than other deans (although the differences in effectiveness are relatively small in this particular institution). This can have important implications for how the evaluation information is used in subsequent decision making.

### Discussion and Implications

A major concern in the literature on evaluating administrators has been the development of valid and reliable measures of leadership effectiveness (Pike, 1994). Fundamentally, evaluating leadership in organizations is not about the attributes the leader has, but about what the leader is perceived to do (and actually does) in the social context of his or her unit. There is an abundance of research and literature that attempts to define or describe what it takes to be an effective leader. Because current evaluation practices have generally been inadequate for the kinds of purposes for which decision makers would like to use the data, three specific goals drove our evaluation of the leadership effectiveness of deans.

Our first goal was to define deans' leadership as a construct comprised of seven domains that represented central evaluation criteria about the responsibilities and skills of the dean's role. The items used to measure these domains (i.e., also supported from prior literature and research) proved successful in measuring the selected evaluation criteria. Our second goal was to study how deans, through their social interactions and behaviors, influence the perceptions of individuals within the units they oversee. Prior research on leadership of deans in academic organizations has focused primarily on analyses that involve the dean's perception of their own effectiveness or the perception of their effectiveness as evaluated by their superiors. An important part of the social context in organizations consists of those perceptions that individuals and groups form regarding the leader's effectiveness through interpersonal transactions. With this view of leadership in mind, we examined systematically the extent to which perceptions of the leadership effectiveness of deans varied according to the individual (i.e., faculty and staff members) making the assessment and other variables associated with the units (e.g., resources, size, type) within an institution. Understanding how individual- and unit-level variables affect performance assessments is an important preliminary step in ensuring valid, reliable, and equitable evaluations. The extent to which such variables influence assessments could constitute potential biases in the "high stakes" evaluation of individuals. Important for purposes of equity, we found that individual background variables (e.g., ethnicity, gender) of the raters accounted for little systematic variance in their performance ratings.

Our third goal was to examine how perceptions of leadership effectiveness varied within and between units. Until recently, organizational researchers have been relatively limited in their ability to analyze data about organizational processes both within individual units and between units simultaneously. For our evaluation purposes, using a multilevel analytic approach provided some new understandings about the definition and measurement of interpersonal transactions that exist between leaders and followers within complex organizations. New techniques, such as the multilevel SEM approach used in this study, can provide researchers with an important means to define and measure social processes and behaviors that exist within multiple levels of the organization; that is, this approach differentiates the perceptions of the individuals from the group's collective view.

Our results clearly support the view that leadership effectiveness can be measured at both the individual and unit levels. Not surprisingly, most of the variation in leadership effectiveness is related to the individuals' somewhat unique views of and experiences with their dean. Importantly, however, our evaluation approach allows us to separate the variation in measuring leadership effectiveness that is due to individuals' own unique perceptions from that portion of measurement that reflects their similar (or collective) view about the leadership effectiveness of the dean or director. Using this latter portion of the variance, we can examine differences that exist between these administrators in terms of their effectiveness and, therefore, draw conclusions about the effectiveness of the entire set of deans and directors.

It is important for deans and directors to understand what faculty and staff collectively perceive as important criteria to be an effective leader. Individual and group exchanges with the dean are constantly taking place within the organizational unit. For example, greater resources generated (external dollars) translated into stronger group perceptions of leadership effectiveness. Interestingly, however, dollars allocated from the central budget did not seem to influence the perception of the dean. Whether the external dollars are generated by the faculty or the dean, the dean typically has the authority to disseminate the overhead from these external dollars throughout the unit. Members within the unit can interpret the acquisition of valued resources as a reward and benefit for their contribution to the goals and mission of the unit, or members within the same unit may perceive the allocation of resources as a threat to their professional work lives. In the first case, the dean's leadership may be viewed as supportive and effective; in the latter case, the dean may be perceived as ineffective in the equitable dissemination of unit resources. This provides support in demonstrating that perceptions of leadership effectiveness are related to the attainment of valued outcomes such as resources.

Moreover, deans that lead larger units were rated stronger in terms of leadership effectiveness within this university. In the tough fiscal times experienced over the past several years within this university, it may be that the replacement of positions is seen as critical to the college's productivity and performance (e.g., graduation rates, student advising and career placement, faculty publications). It is likely that the dean of the unit is viewed more favorably for maintaining or replacing current personnel levels, or at least minimizing the increased pressure to perform with limited resources. Larger units may also have greater flexibility to absorb reductions in staff and expenses more readily than smaller units.

Perhaps the most intriguing finding in this study is the relationship between the sex of the dean and leadership effectiveness. We found that female deans in this university were rated stronger in terms of their leadership effectiveness, after controlling for the sex of the evaluators. While the number of female deans is small in this study, the multilevel analysis of leadership effectiveness may be helpful in untangling various debates in the organizational literature about whether women rate supervisors more favorably than men, or whether women tend to rate women tougher (Billing & Alvesson, 1994; Eagly, Makhijani, & Klonsky, 1992). In our case, for example, we found that ratings of deans and directors did not differ by the sex of the rater. Further research, however, is suggested in this area to determine why women are rated as more effective leaders. Researchers should strive to define and measure those domains that make a difference in the way women, as well as men, lead their academic units.

Within units, we found support for the belief that a faculty member's role (e.g., department chair) in the unit is affected by the exchange process. More specifically, department chairs rated the leadership effectiveness of deans more strongly than other faculty and staff rated the leadership effectiveness of deans. It may be that department heads receive greater rewards from them in the organization (e.g., greater input into decision-making processes, reduced teaching loads). Department chairs may also have a greater understanding of, or appreciation for, what the dean does. This finding may be an example of what Hollander (1978) refers to as the dissemination of privileged information and communication. The chair has a closer interpersonal relationship and line of communication with the dean than most faculty and administrative staff within the unit or department. Cook (1982) also notes that the proximity of the actors within the process of a social exchange can lead to more favorable perceptions of leadership effectiveness.

Leadership, with its multiple theoretical approaches and applications, is a powerful phenomenon, and our understanding and evaluation of leadership within the complexities of social organizations continues to evolve. Besides the importance of the evaluation process to the careers of individuals, the evaluation data may be used by senior administrators in making judgements about the effectiveness of both individuals and groups of administrators. Providing a clear understanding of the specific responsibilities, skills, and evaluation goals for performance within the institution cannot only aid in the hiring and selection process, but can lead to more effective evaluations of leadership performance.

A further advantage of evaluation data that is drawn from the faculty and staff rather than the senior administration is its credibility. When senior administrators assert that those deans and directors they have hired are effective, the assertion may be perceived as self-serving or biased by both external and internal groups. Although evaluations from senior administrators continue to be a central component of the performance process, the evaluation design described in this study broadens the scope of the data gathered about the performance of deans, and the multilevel analysis of these data improves its accuracy. In the design of evaluations that use faculty and staff input, however, it is important to acknowledge that the individual evaluators have a relatively large effect on the accuracy of the assessments. Because of this, a sizable number of individuals must be included within each unit to ensure the generalizability of the evaluation (see Heck, Johnsrud, & Rosser, 2000, for further discussion).

Our study suggests that deans and directors need to be aware of the effectiveness of their interactions and transactions—an effectiveness that comprises the ability to garner individual as well as group support, to conceptualize and pull ideas together, to provide a clear direction for the unit, to exemplify fairness and good judgment, and to possess the leadership savvy to perform the various functions, tasks, and duties in a manner and style reflective of the organization's goals and mission. In pursuit of effectiveness, academic leaders need to bring to bear an understanding of the complexities of social exchange within an academic setting and attend to the perceptions that individuals and groups form regarding their performance. Universities would be well served to systematically invest in, formally train, and fairly and accurately evaluate their academic leaders.

APPENDIX I

Leadership Domains with Means and Standard Deviations by Item

| Vision and Goal Setting | Mean | *SD* |
|---|---|---|
| Articulates clearly the strategic goals of the unit | 3.92 | 1.17 |
| Encourages ideas and creativity | 3.73 | 1.37 |
| Creates an atmosphere conducive to high faculty performance | 3.54 | 1.43 |
| Demonstrates vision and long-range planning | 3.67 | 1.42 |
| Emphasizes teaching excellence appropriately | 3.71 | 1.21 |
| Emphasizes research excellence appropriately | 3.83 | 1.28 |
| Emphasizes service excellence appropriately | 3.74 | 1.22 |
| Advocates for resources needed by the unit | 3.68 | 1.38 |
| Encourages faculty development | 3.78 | 1.32 |
| Encourages curriculum/program development | 3.83 | 1.32 |
| Provides leadership for the unit/subunit level initiatives | 3.52 | 1.44 |
| Overall rating of Vision and Goal Setting | 3.71 | 1.41 |
| *Management of the Unit* | | |
| Insures that fair administrative procedures are followed | 3.60 | 1.28 |
| Exercises fair and reasonable judgment in the allocation of resources | 3.49 | 1.26 |
| Manages change constructively | 3.53 | 1.37 |
| Delegates work effectively | 3.65 | 1.21 |
| Handles administrative tasks in a timely manner | 3.84 | 1.22 |
| Effective problem solver | 3.62 | 1.37 |
| Demonstrates knowledge of departments and programs within the unit | 3.71 | 1.35 |
| Maintains an effective and efficient staff | 3.97 | 1.04 |
| Overall rating of Management skills | 3.64 | 1.31 |
| *Interpersonal Relationships* | | |
| Demonstrates understanding of the needs and concerns of unit members. | 3.64 | 1.37 |
| Treats individuals fairly and with respect | 3.84 | 1.29 |
| Maintains positive and productive relationships within the unit | 3.78 | 1.27 |
| Maintains positive and productive relationships external to the unit | 3.95 | 1.08 |
| Demonstrates awareness of the quality of professional work of unit members | 3.68 | 1.33 |
| Demonstrates sensitivity to career and mentoring needs of unit members | 3.57 | 1.33 |
| Accessible to faculty and staff within the unit | 4.07 | 1.17 |
| Demonstrates understanding of the needs and concerns of students | 3.93 | 1.27 |
| Accessible to students | 3.85 | 1.31 |
| Overall rating of Interpersonal Relationship skills | 3.81 | 1.32 |
| *Communication Skills* | | |
| Listens to and communicates with unit members | 3.71 | 1.23 |
| Listens to and communicates with external constituencies | 3.98 | 1.13 |
| Effectively represents the unit and its members to the rest of the university | 4.04 | 1.20 |
| Effectively communicates the unit's priorities to the upper level administration | 3.97 | 1.25 |
| Effectively communicates the upper level administration priorities to chairs | 3.91 | 1.18 |
| Effectively represents the unit and its members to the rest of the university | 3.93 | 1.26 |
| Produces clear reports and correspondence | 3.99 | 1.15 |
| Overall rating of Communication Skills | 3.94 | 1.17 |
| *Research/Professional/Community/Campus Endeavors* | | |
| Maintains an active research/scholarly agenda | 3.11 | 1.65 |

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APPENDIX I (*Continued*)

| | | |
|---|---|---|
| Pursues professional growth opportunities | 3.27 | 1.44 |
| Engages in effective teaching | 2.81 | 1.57 |
| Contributes his/her services to professional organizations | 3.70 | 1.27 |
| Contributes his/her services to community and campus projects | 3.50 | 1.28 |
| Overall rating of Endeavors. | 3.29 | 1.44 |
| *Quality of Education in the Unit* | | |
| Advances the unit's undergraduate programs effectively | 3.46 | 1.47 |
| Advances the unit's graduate programs effectively | 3.41 | 1.40 |
| Advocates appropriate curriculum offerings | 3.42 | 1.49 |
| Handles external accreditation reviews effectively | 3.88 | 1.36 |
| Recruits new personnel and/or promotes recruitment skillfully | 3.41 | 1.51 |
| Demonstrates a commitment to ensuring a fair tenure and promotion process | 3.48 | 1.54 |
| Overall rating of Quality of Education | 3.49 | 1.49 |
| *Support for Institutional Diversity* | | |
| Demonstrates commitment to advancing and supporting equal employment opportunities | 3.89 | 1.14 |
| Demonstrates commitment to mentoring of women and faculty from underrepresented groups | 3.83 | 1.21 |
| Provides reasonable accommodation for persons with disabilities | 3.68 | 1.14 |
| Ensures that staff are educated in EEO/AA concerns | 3.78 | 1.10 |
| Overall rating of Support for Institutional Diversity | 3.80 | 1.14 |

## Notes

[1] The intraclass correlation is described as the proportion of the variance in an outcome that lies between groups (deans):

$$\rho = \tau_{00}/(\tau_{00} + \sigma^2).$$

[2] The proposed model was tested with Muthén and Muthén's (2001) quasi-maximum likelihood fitting function (MLM) that includes robust standard errors and adjustment to the chi-square test statistic due to unbalanced group sizes.

[3] The multilevel formulation has a number of advantages over single-level analyses including defining variables at their correct organizational level (e.g., resource differences as a between-group variable). This results in the correct calculation of standard errors (i.e., calculated over the number of units in the study as opposed to the number of individuals). A second advantage is the incorporation of measurement errors on observed variables into the analysis at both levels. The multilevel model can be translated into a between-cluster (c) model with latent variables, which is written as

$$v^*_c = \nu_B + \Lambda_B \eta_{Bc} + \varepsilon_{Bc}, \qquad (1)$$

$$\eta_{Bc} = \alpha_B + B_B \eta_{Bc} + \zeta_{Bc}, \qquad (2)$$

and a within-cluster (ci) model with latent variables, which can be written as

$$v^*_{ci} = \Lambda_W \eta_{Wci} + \varepsilon_{Wci}, \qquad (3)$$

$$W_{ci} = B_W \eta_{Wci} + \zeta_{Wci}. \qquad (4)$$

Equations 1 and 3 represent the measurement models liking observed variables to underlying factors for each level, and Equations 2 and 4 represent the latent variable structural models at each level.

[4] There are few fit indices besides chi square currently available in *Mplus* for testing multilevel models with unbalanced group sizes and MLM estimation. These indices include the comparative fit index (CFI), the Tucker-Lewis Index (TLI), and the standardized root mean square residual (SRMR). The CFI (0.982) and TLI (0.975) provide indications of the variances and covariances in the data accounted for by the proposed model. Values above 0.95 generally indicate a good-fitting model. In contrast, the SRMR describes the average magnitude of the residuals or, in this case, the variances unaccounted for in between- and within-group models. Values should be close to zero for a good-fitting model. In this case, the SRMR value for the between portion of the model is 0.102, while the value for the within model is 0.012. These coefficients suggest that the within-groups model fits the data somewhat better than the between-groups model. The discrepancy in quality of fit is likely due to differences in the sample sizes of each model.

[5] The size of parameters may be tested with t-tests (i.e., the ratio of the parameter to its standard error). T-values greater than 1.96 are significant at $p = 0.05$).

[6] We can estimate the proportion of the leadership variance that lies between-deans ($\psi_B$) relative to the total leadership variance ($\psi_T$). This corresponds to an adjustment made for the individual measurement properties of the observed variables comprising the leadership factor (e.g., differing intraclass correlations). The latent variable counterpart of an intraclass correlation for observed variables can therefore be expressed as

$$\psi_B / (\psi_B + \psi_W).$$

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Joshua B. Powers

# Commercializing Academic Research

## Resource Effects on Performance of University Technology Transfer

In recent years, universities, particularly large research institutions, have rapidly escalated their involvement in technology transfer, the process of transforming university research into marketable products. Fueled in part by redefined external expectations for economic development as well as internal pressures to generate new sources of revenue (Slaughter & Leslie, 1997), this emergent commercialization mission for higher education is serving to transform higher education in substantive ways. For example, since 1980 and the passage of the Bayh-Dole Act, the patenting of academic inventions has increased almost sevenfold from 390 for all academic institutions to 2,681 in 1998 (Associates of University Technology Managers [AUTM], 1998; National Science Board, 1998). Furthermore, between 1991 and 1997, a sample of 64 top research universities reported that their licensing of patented technologies to business and industry had more than doubled from 938 to 1,923 licenses issued (AUTM, 1998). Member institutions of the Association of University Technology Managers (AUTM) also reported that more than 2,500 new companies had been formed since 1980 for the purpose of commercializing a specific university developed technology.

These new entrepreneurial tendencies, however, have generated considerable controversy. Recent research suggests that as colleges and universities have strengthened their linkages with the for-profit sector, the result has been a shift toward more applied research and restrictions by industry R&D sponsors on the publication of new knowledge

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(Blumenthal, Campbell, Anderson, Causino, & Louis, 1997; Cohen, Florida, Randazzese, & Walsh, 1998). Other research has suggested that pressures to identify new sources of income to fund the increasingly expensive research enterprise has weakened faculty and administration resistance to external influence on the direction of academic inquiry (Argyres & Liebeskind, 1998; Slaughter & Leslie, 1997). Additionally, there is evidence that faculty involved in new ventures may be distracted from their primary duties as teachers and scholars as they seek to simultaneously manage the enormous responsibilities associated with running a business (Campbell & Slaughter, 1999). The negatives associated with the entrepreneurial university phenomena, or what Slaughter and Leslie (1997) call "academic capitalism," have also received considerable coverage in the popular press (Barboza, 1998; Marcus, 1999; Press & Washburn, 2000).

Despite the controversy, universities are forging ahead with their technology transfer activities in a quest for new sources of revenue and newfound legitimacy as important sources of innovation in a competitive global marketplace (Mansfield & Lee, 1996). However, only a relatively few number of institutions have experienced financial success in technology transfer (United States General Accounting Office, 1998). High profile success stories such as Vitamin D technologies at the University of Wisconsin ($99 million in licensing royalties), the Cisplantin cancer treatment drug at Michigan State University ($86 million in royalties) and Gatorade at the University of Florida ($33 million) are more the exception than the norm[1] (Riley, 1998).

Considering higher education's increasing enthusiasm for technology transfer, research to inform its practice is important. However, while some research has been done on university-industry collaboration in general (Campbell, 1997; Cohen et al., 1998) and university technology transfer in particular (Dill, 1995; Matkin, 1990), relatively little work has investigated factors that may explain differential performance with technology transfer. What has been done has generally been of a case study nature (Roberts & Malone, 1996), regional in scope (Smilor, Gibson, & Dietrich, 1990), or descriptive in focus (Matkin, 1990). Thus, this quantitative study seeks to fill this research gap by investigating if particular institutional resource factors may explain differences in technology transfer performance across a representative sample of universities engaged in its practice. More specifically, the research questions that I explore are what impact, if any, do particular financial, physical, human capital, and organizational resources of universities have on patenting, licensing, and income generation from licenses, three common metrics of technology transfer practice? Furthermore, to what degree does the external environment in which a university is located matter?

## *Theoretical Frameworks*

As mentioned earlier, wide-scale university involvement in technology transfer is largely a phenomenon of the past twenty years (Feller, 1997). Not surprisingly, then, as a topic of inquiry, it is very young and underdeveloped. What has been published is largely atheoretical as researchers seek to describe and/or understand particular aspects of its practice for which a theory of university technology transfer may ultimately take form.

Although no theory of university technology transfer per se exists at this time, there is enough known about the phenomenon that elements of more developed theories in the business strategy and organizational theory literatures can be brought to bear in this study, since each provides a unique contribution to understanding what may explain differential performance among America's research universities. Specifically, I ground this study using an integrative theoretical framework that incorporates important elements of the resource-based view of the firm (Barney, 1991; Wernerfelt, 1984) and resource dependence theory (Pfeffer & Salancik, 1978). These theories provide valuable and distinct insights into potential contributory factors to a university's performance with their technology transfer programs.

### *Resource-Based View of the Firm*

One theory within the strategic management literature that has received considerable attention in recent years is what is known as the resource-based view of the firm (Barney, 1991). Focused on resources internal to an organization, the resource-based view suggests that particular idiosyncratic resources, those that are difficult or costly to copy, can provide a firm a competitive advantage in the marketplace when appropriately exploited (Barney, 1991; Grant, 1991). Firms that develop particular internal resource attributes may outperform other competing firms in an industry. These resources could be any number of assets, capabilities, organizational processes, organizational attributes, information, knowledge, etc. that the firm possesses.

Of particular interest to this study is the research identifying important resources for entrepreneurial activity such as would occur with university technology transfer. Some of the unique resources identified have included expert knowledge and scientific capabilities (Deeds, DeCarolis, & Coombs, 1997; Finkle, 1998) as well as access to important personnel, information, and support structures (Flynn, 1993; Mansfield & Lee, 1996). In addition, researchers have found a direct and positive relationship between university research and the creation of new products and processes by high-technology industries (Mansfield & Lee, 1996) as well as birth rates of new organizations (Flynn, 1993). Hence, in a higher education context, such resources as the quality of one's faculty, the presence of particular programs and infrastructures, the amount of R&D support, and location related factors might represent critical resources of this type for a university and hence predictors of technology transfer performance.

### *Resource-Dependence Theory*

As has been discussed, the resource-based view of the firm focuses on internal resource factors to an organization that contribute to its ability to outperform other firms or organizations in an industry. As is true with many organizational entities functioning in open systems (Lawrence & Lorsch, 1967), the ability to achieve high levels of performance may also be attributable to factors in the external environment to which they have been able to effectively respond. For example, organizations confronting possible reductions or disruptions in the supply of critical raw materials may be stimulated to seek alternative sources as a way of ensuring long-term survival. Organizations that successfully extract these important new sources of supply may outperform those that remained dependent on the old source, particularly if the reductions or disruptions in fact materialize.

Resource-dependence theory (Pfeffer & Salancik, 1978) provides a useful framework for conceptualizing the impact of external resource dependencies and its linkage to performance, issues of additional importance to this study. Resource dependence theory suggests that causal explanations for organizational behavior are found through analyses of the social interactions of an organization with its external environment rather than relying on rational, economic theory approaches to organizational behavior that at times have been inadequate for explaining seemingly irrational action (Pfeffer, 1997).

Considering this perspective, resource dependence theory argues that organizations seek to reduce their dependence on suppliers of critical resources in ways that better ensure the long-term survival of the organization (Pfeffer & Salancik, 1978). Slaughter and Leslie (1997), in their study of higher education and its growing entrepreneurial orientation, found that research universities, confronted with reductions in traditional sources of income such as through state block grants, have sought to reduce dependence on this source of revenue by escalating their involvement in commercial activity for revenue enhancement purposes. In doing so, universities are ostensibly able to obtain greater control over resource flows while simultaneously enhancing their legitimacy as an engine of economic development, an issue of considerable recent inter-

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est to federal and state policymakers. As such, within a resource dependence framework, institutions experiencing greater threats to their revenue streams, such as with state block grants, would be expected to have technology transfer programs that outperform schools experiencing more robust resource flows from traditional sources of income.

## *Methodology*

The sample of 108 Research I and II institutions was drawn from data reported in the annual licensing surveys of the Association of University Technology Managers (AUTM) for the period 1991 to 1998. The AUTM surveys are the only comprehensive and national source of data on technology transfer activity. The inclusion of these Research I and II institutions in the sample was appropriate because the bulk of technology transfer is largely represented by this subset of American universities, and there is considerable variation in technology transfer activity even among this group of institutions. Additionally, these geographically diverse institutions represent 84% of the Carnegie Research I institutions and 62% of the Carnegie Research II institutions in this country as well as 82% of the land-grant institutions. Thus, statistical inferences about the overall population of institutions most likely to be engaged in technology transfer is possible.

In addition to data collected from the AUTM surveys, data on internal resources to particular universities were obtained from the National Science Foundation, the National Academy of Sciences, and *Peterson's Guide to Colleges and Universities.* Information on external resources were collected from Cognetics annual reports of entrepreneurial hot spots, the *Venture Capital Yearbook,* and Postsecondary Education Opportunity, a private firm that tracks state expenditures on higher education.

### *Dependent Variables*

Three dependent variables were included in this study, all obtained from the 1996–98 AUTM licensing surveys and operationalized as continuous average annual measures of performance. These variables represent three technology transfer performance outcomes, patents held, licenses executed, and licensing income realized. The first of these, patents held, represents an important first step in the technology transfer process, since to outside for-profit firms it represents a tangible and valuable asset with legal protections from copying.

The second dependent variable is the licensing of a patented technology. As mentioned earlier, universities have significantly ramped up their technology transfer efforts in recent years, one manifestation of which is licensing activity. Since simply holding a patent in no way guarantees that it will be licensed or that it will not be made redundant by the emergence of an eclipsing technology, successfully consummating a licensing deal with a firm is a considerable accomplishment. Furthermore, it represents a way of potentially recouping the costs associated with the patenting process and hopefully a means of generating revenues in excess of those costs.

The third dependent variable is licensing income. Since university licensed technologies are often at an early stage of development, there is generally considerable time and effort still required on behalf of the licensee firm to develop it into a product with potential for sale. Many factors both inside and outside the firm can derail the chances of even minimal success, let alone the blockbuster achievements of technologies such as Vitamin D, Gatorade, and Cisplantin. Hence, the revenues realized by a university may be limited to just the costs of patenting and perhaps a small to moderate up-front fee, examples of typical terms included in many licensing agreements. Thus, realizing an actual return on investment for a licensed technology is a coveted performance achievement.

### *Independent Variables*

As mentioned previously, the purpose of this study was to identity particular resource attributes of universities that may explain differential performance with technology transfer. Hence, a series of internal variables to universities were identified from previous research as potential explanatory factors of performance variability among the sample institutions. These variables are grouped into categories and represent potentially critical resources for technology transfer performance as would be predicted by the resource-based view of the firm.

*Financial resources.* Two financial variable were included in this study, the average annual federal and industry R&D revenues for the period 1993–1995. Data for these continuous variables were obtained from the National Science Foundation's annual surveys of research and development expenditures.

Federal R&D resources have long been the most important source for academic R&D, approximately 70% of all R&D expenditures in 1997 (National Science Board, 1998). Additionally, there is strong evidence that federal funds have directly or indirectly funded academic research leading to many industrial innovations (Mansfield, 1995) and that even basic research has been found to be of considerable value to business and industry (Faulkner & Senker, 1994).

Industry sponsored R&D at universities, although considerably smaller in overall terms compared to federal sources, nonetheless is the fastest growing source of R&D funding for university research (National Science Board, 1998). Furthermore, even though industrial support may be quite small by comparison, its emphasis on supporting applied research and targeted outcomes suggests that it might generate considerable technology transfer activity. Previous research on university-industry relations, for instance, indicates that institutions with closer ties to industry do generate greater numbers of spin-offs and entrepreneurial activities such as faculty involvement in new firms or institutional equity participation in start-up firms (Cohen et al., 1998; Roberts & Malone, 1996).

*Physical resources.* Two physical resources were included in this study, the presence of a medical school and the presence of an engineering school. Operationalized as dichotomous measures, these data points were obtained from the 1995 edition of *Peterson's Guide to Colleges and Universities.*

Medical and engineering schools are a valuable physical resource to universities for their technology transfer programs. Not only has the bulk of academic research and development expenditure been allocated to a relatively small group of research institutions, the fields of medicine and engineering have received the lion's share of that funding. For example, in 1995, the medical sciences received the largest percentage of academic research and development funding from all sources (i.e., federal, industry, and institutional), 27% of total expenditures. The engineering disciplines received 16% of all expenditures, just behind the biological sciences (National Science Board, 1998) at 17%. This pattern of disproportional support of these particular disciplines has held for decades.

As it regards university patenting and licensing activity, what evidence is available suggests that a considerable amount of technology transfer occurs in the medical and engineering fields. Thursby and Kemp (1999) in their extensive study of university technology transfer, for example, reported that the biological sciences and engineering are the most important source of university licenses. Not surprisingly, a considerable amount of patent activity is also centered in the life and physical sciences (Feller, 1997; National Science Foundation, 1997).

*Human capital resources.* One human capital oriented independent variable was included in this study, the quality of science and engineering faculty. Data for this continuous variable were obtained from the survey of faculty research quality conducted by the National Research Council (NRC). The NRC data, published in 1995, have been used in previous research exploring the impact of university R&D and the nexus between industry and higher education and are believed to be a legitimate set of measures of faculty research quality based on its attention to methodological rigor and comprehensiveness (Mansfield, 1995; Mansfield & Lee, 1996).

An average ranking figure was calculated for this variable from reported ratings in the biological sciences, physical sciences, and engineering fields, the ones most likely to be involved in technology transfer.

Previous research has shown a significant relationship between the reputation of university scientists and various measures of economic development. Deeds, DeCarolis, and Coombs (1997), for example, found that university scientist talent was a significant predictor of initial public offering (IPO) performance of biotechnology companies. Zucker, Darby, and Armstrong (1998) found a direct and significant relationship between the reputation of university scientists and the number of products in development or on the market as well as the size of the company measured in number of employees. Finkle (1998) found that biotechnology companies in which the CEO was a former university professor performed better than firms where the CEO was not a former professor.

*Organizational resources.* One organizational resource was included in this study, a dichotomous variable that captures an institution's private or public status. Because private and public universities differ in ways such as how they are funded, how they must meet legal and fiduciary requirements, and how they are accountable to their various stakeholders, it is reasonable to expect that they may differ in their approach to technology transfer practice. For instance, public higher education may be prevented from engaging in certain kinds of entrepreneurial activity that private institutions are not, or private universities may have greater flexibility in how technology transfer programs are structured and managed. Thursby and Kemp (1999), for example, found that private universities were able to more effectively leverage their intellectual capital into commercial licenses than public institutions. Historically, some of the most well known institutions with a culture supportive of entrepreneurial activity are also private schools (Matkin, 1990; Louis, Blumenthal, Gluck, & Stoto, 1989).

### *Control Variables*

In addition to the internal resources just described, previous research suggests that it is likely that some universities may enjoy particular locational advantages related to the external environment for entrepreneurial activity (Pouder & St. John, 1996; Roberts, 1991), something that the resource-based view of the firm might also predict. Furthermore, the level of state support for higher education may drive an increased emphasis on technology transfer activity as a resource-dependence reduction response (Slaughter & Leslie, 1997).

In order to investigate and isolate these effects from the aforementioned independent resource factors, three location-related resource factors were included as control variables. The first variable, an average annual index measure of the entrepreneurial climate within a state for the period 1993–1995, was generated from Cognetics' annual ratings of entrepreneurial hot spots. The reports produced by Cognetics are a respected and reliable source of information on geographical differences in the formation and growth of new firms.

A second measure of the entrepreneurial climate included a variable that captured the level of venture capital availability or munificence within a state, a resource often of critical importance to the types of firms likely to be licensing university technologies (Roberts & Malone, 1996). Data for this continuous variable was obtained from the 1993, 1994, and 1995 *Venture Capital Yearbooks* and represents an average annual venture capital commitment figure for that period.

The third variable associated with the external environment was the average annual level of state support for higher education per $1000 of personal income for the period 1993–95. This continuous measure of state support was obtained from Postsecondary Education Opportunity, a firm that specializes in the analysis of higher education financial data.

Together with the above measures of the external environment, two other internal resource variables were included as controls that have often been shown to be important in firm or technology transfer performance studies, the size and age of the organization (Deeds et al., 1997; Roberts & Malone, 1996), in this case, the technology transfer office (TTO). These continuous variables were both obtained from the AUTM licensing surveys.

The size of the TTO came from the 1995 AUTM survey and represents the number of professional staff FTEs in the office at that time. Universities with greater numbers of professional staff to handle technology transfer would be expected to outperform institutions less well endowed with this human capital resource. The age of the TTO, operationalized as the number of years that the office had at least 0.5 FTE of dedicated professional staff, was obtained from the 1998 licensing survey. Institutions with older TTOs would be expected to have developed superior skill sets for managing the commercialization enterprise and hence enjoy higher performance levels as well based on this human capital resource.

## *Results*

The data were analyzed using both univariate and multivariate statistical techniques. First, descriptive statistics were calculated on each of the variables (e.g., means, standard deviations, and frequencies of dichotomously coded variables) and are listed in Table 1.

TABLE 1

Means, Standard Deviations, Range Values, and Frequencies

| Variable | Mean | Standard Deviation | Range (min.–max.) | Frequencies |
|---|---|---|---|---|
| Federal R&D | $88.43 mil. | $69.07 mil. | $6.20 mil.–$280.38 mil. | |
| Industry R&D | $9.57 mil. | $9.03 mil. | 0–$55.45 mil. | |
| Med. school | 0.52 | 0.50 | | 56 with medical schools; 52 w/o medical schools |
| Eng. school | 0.84 | 0.37 | | 91 with engineering schools; 17 w/o engineering schools |
| Faculty quality | 3.01 | 0.71 | 1.28–4.64 | |
| Private/public | 0.28 | 0.45 | | 30 private universities; 78 public universities |
| Entrep. climate | 46.49 | 14.31 | 18.67–82.33 | |
| VC munificence | $238.41 mil. | $368.4 mil. | 0–$1.11 bil. | |
| State approp. | 8.37 | 2.53 | 5.52–16.22 | |
| TTO size | 2.38 | 2.29 | 0–11 | |
| TTO age | 16.56 | 12.00 | 1–75 | |
| Patents | 19.68 | 18.83 | 0–124 | |
| Licenses | 24.24 | 26.51 | 1–146 | |
| Lic. income | $4.25 mil. | $8.49 mil. | $15,000–$48.86 mil. | |

Second, a correlation matrix was calculated as a collinearity check and shown in Table 2. Since a few of the bivariate correlations among independent variables were somewhat high, although still below the rule of thumb threshold of 0.8 (Lewis-Beck, 1980), a more thorough investigation for collinearity was conducted. Variance inflation factors were computed for each variable, all of which were under five, well below the concern level of ten that previous researchers indicate is suggestive of collinearity problems (Von Eye & Schuster, 1998). Finally, a series of regression model pairs were run in which each independent variable with a correlation above 0.5 was included and then subsequently excluded from the models to see if the regression coefficient results were substantively affected. No differences were found, indicating the absence of excessive collinearity.

Finally, additional tests of the data for Ordinary Least Squares regression violations were investigated. A series of histograms and normal probability plots were created with the results indicating the need to log transform the number of licenses and licensing income variables to adjust for skewness in the data.

Once it was clear that the data were ready for ordinary least squares regression, a block step entry procedure was employed such that the control

TABLE 2

Correlation Matrix

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Federal R&D | 1.0 | | | | | | | | | | | | | |
| 2. Industry R&D | 0.62 | 1.0 | | | | | | | | | | | | |
| 3. Med. school | 0.43 | 0.14 | 1.0 | | | | | | | | | | | |
| 4. Eng. school | 0.19 | 0.27 | −0.01 | 1.0 | | | | | | | | | | |
| 5. Faculty quality | 0.75 | 0.41 | 0.27 | −0.01 | 1.0 | | | | | | | | | |
| 6. Private/public | 0.23 | 0.08 | 0.18 | 0.10 | 0.35 | 1.0 | | | | | | | | |
| 7. Entrep. climate | 0.08 | 0.07 | 0.04 | −0.12 | 0.08 | −0.13 | 1.0 | | | | | | | |
| 8. VC munificence | 0.29 | 0.00 | 0.07 | −0.10 | 0.41 | 0.19 | 0.03 | 1.0 | | | | | | |
| 9. State approp. | −0.17 | −0.07 | −0.06 | 0.13 | −0.36 | −0.30 | 0.26 | −0.41 | 1.0 | | | | | |
| 10. TTO size | 0.67 | 0.40 | 0.28 | 0.06 | 0.55 | 0.03 | −0.03 | 0.46 | −0.16 | 1.0 | | | | |
| 11. TTO age | 0.37 | 0.23 | 0.12 | 0.09 | 0.30 | 0.06 | −0.01 | 0.24 | −0.02 | 0.44 | 1.0 | | | |
| 12. Patents | 0.78 | 0.63 | 0.26 | 0.11 | 0.70 | 0.18 | 0.06 | 0.32 | −0.15 | 0.63 | 0.55 | 1.0 | | |
| 13. Licenses | 0.67 | 0.47 | 0.19 | 0.15 | 0.57 | 0.20 | 0.03 | 0.17 | −0.01 | 0.61 | 0.55 | 0.71 | 1.0 | |
| 14. Lic. income | 0.48 | 0.17 | 0.22 | −0.07 | 0.44 | 0.20 | −0.01 | 0.25 | −0.20 | 0.40 | 0.19 | 0.53 | 0.45 | 1.0 |

NOTE: Correlations above $|0.24|$ are significant at $p < 0.01$; those above $|0.18|$ are significant at $p < 0.05$ *N's* vary from 103–106 because of missing data.

variables were entered in step 1 (the partial model) and the independent variables in step 2 (the full model). The results of this analysis, including beta-weights, $F$-values, adjusted $R$-squared values, and indicators of significance at the 0.1, 0.05, 0.01, and 0.001 levels are reported in Table 3.

It is evident from the regression results, that the three models explained a significant amount of the variation in each of the dependent variables and that the inclusion of the independent variables significantly ($p < 0.001$) improved the model fit in each case. The full models explained between 48 and 73% of the variance in their respective dependent variable, and the $F$-statistic was highly significant in all cases, findings indicative of good model fits and the appropriateness of using the full models for drawing inferential conclusions.

In Model One, involving the patents dependent variable, the age of the TTO and level of industry R&D revenue was highly significant ($p < 0.001$) in the full model while federal R&D revenues and the quality of the science and engineering faculty were strongly significant ($p < 0.01$). Hence, this result provides confirmatory evidence of the value of these resources for patenting activity. Specifically, institutions with older TTOs, greater levels of federal and industry R&D revenues, and more highly reputable science and engineering faculty have more patents than institutions that are less resource rich in these areas.

In Model Two, involving the number of licenses performance outcome, the faculty quality variable was highly significant, the age of the TTO strongly significant, and size of the TTO significant ($p < 0.05$), all in the positive direction. The venture capital variable, however, was strongly significant but in the negative direction, suggesting that institutions located in states with lower levels of venture capital actually outperform institutions in states with more robust venture capital resources in terms of the number of licenses held.

For Model Three, which included the licensing income variable, once again the faculty quality variable was strongly significant with the size of the TTO approaching significance ($p = 0.06$). The venture capital munificence variable, though, was strongly significant but in the negative direction, once again suggesting the benefits to institutions in states with smaller levels of venture capital. Similarly, the state appropriations variable approached significance ($p = 0.08$) in the negative direction, suggesting some support for a resource-dependence explanation for this relationship. In order to test if this relationship holds for both private and public institutions, a separate set of regression analyses were conducted for these respective types of institutions (not shown). The results indicated a strongly significant finding in the negative direction for publics (Beta of –0.27) and a strongly significant finding for privates but in the positive di-

TABLE 3

Regression Results of all Models

| | Model 1: PATENTS $N = 103$ | | Model 2: LNLICENSES $N = 106$ | | Model 3: LNLICINC $N = 104$ | |
|---|---|---|---|---|---|---|
| Variables | Partial Model | Full Model | Partial Model | Full Model | Partial Model | Full Model |
| Entrep. climate | 0.11 | –0.03 | 0.23** | 0.13$^+$ | 0.21* | 0.13 |
| VC munificence | –0.04 | 0.03 | –0.27** | –0.23** | –0.28** | –0.27** |
| State approp. | –0.09 | 0.07 | –0.21* | –0.03 | –0.31*** | –0.16$^+$ |
| TTO size | 0.49*** | 0.07 | 0.56*** | 0.20* | 0.53*** | 0.22$^+$ |
| TTO age | 0.35*** | 0.26*** | 0.25** | 0.18** | 0.13 | 0.05 |
| Fed. R&D | | 0.33** | | 0.19 | | 0.16 |
| Ind. R&D | | 0.24*** | | 0.10 | | 0.01 |
| Med. school | | –0.06 | | 0.04 | | 0.11 |
| Eng. school | | –0.06 | | 0.05 | | 0.08 |
| Faculty quality | | 0.26** | | 0.41*** | | 0.38** |
| Private/public | | –0.004 | | 0.04 | | 0.003 |
| $F$-Value | 20.11*** | 25.41*** | 16.19*** | 17.41*** | 10.68*** | 9.51*** |
| Adjusted $R^2$ | 0.48 | 0.73 | 0.42 | 0.63 | 0.32 | 0.48 |

$^*p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$; $^+p < 0.1$

rection (Beta of 0.77). This result suggests that the licensing income received by both public and private institutions is highly influenced by state appropriations but in opposite ways. States with lower appropriation levels are associated with higher licensing income amounts to their public institutions but lower amounts to their private institutions and visa versa.

## *Discussion*

As stated earlier, the purpose of this study was to investigate the possible effects of a set of internal and external resource factors on particular technology transfer outcomes. Considering the range of performance exhibited by institutions in this data set, the results of the analysis provide useful insights into the factors of particular importance to technology transfer practice. In the context of each of the resource categories, I provide commentary on the results in the sections that follow.

### *Financial Resources*

It appears from this study that federal and industry R&D support are important contributors to patenting activity as the resource-based view of the firm would predict but that their effect disappears when considering the licenses consummated or licensing income performance variables. By way of explanation for the federal R&D results, it is important to remember that federal sponsorship of academic research has historically been for basic research. Although federal policy since 1980 has sought to encourage the ultimate dissemination of research for economic development purposes, it has not generally been prescribed that a recipient of a federal grant must seek to license a technology developed from federal funds. The Bayh-Dole Act of 1980 simply allowed universities to keep the patent rights to inventions created from federal research dollars. Hence, it is not wholly surprising that this resource was not a significant predictor of the latter two performance outcomes.

The result for industry R&D was particularly interesting. Industry R&D support is generally given to universities for specific applied purposes for which a firm believes it will ultimately benefit. The results of this research suggests again that it does have a strong influence on patenting activity but no measurable affect on the number of licenses produced or licensing income realized by a university. Hence, either industry is not benefiting to the degree previously thought or the manner in which it was investigated in this study was unable to detect it.

One explanation may be that industry is benefiting through simply contractual agreements to conduct a study or clinical trial for which they are provided the results directly and not via a license on a patented technology. This form of industry-sponsored research is common. In cases where the intent of the research is to develop a new technology for which a firm may enjoy exclusive or non-exclusive rights to the technology, it may also be that the original sponsored research agreement specified that the company would have the rights to any technologies that might develop out of the research without cost to the firm (J. Johncox, personal communication, October 5, 2000). As such, the accrued benefits to universities would not appear in the form of licensing income. Nevertheless, the lack of a linkage between industry R&D revenues and licensing activity or income is a noteworthy one and a valuable area for future inquiry.

### *Physical Resources*

As was shown in the study results, having either a medical or engineering school was not a significant predictor of any of the measures of technology transfer performance. This result suggests that institutions with one of these units on their campus do not outperform their counterparts that do not have one. In order to more finely analyze the relationship between medical or engineering schools and each measure of performance, a regression model was run (not shown) that compared institutions with both an engineering school and a medical school with those that had only one or the other. Once again, no significant differences were found. Comparing schools with both units against those with neither type was not possible, because so few institutions in the sample had neither a medical nor an engineering school.

While this result may seem counterintuitive, it is also true that many of the advances in the life sciences do not emerge from medical schools but rather from within arts and sciences units. For example, blockbuster licenses such as Taxol at Florida State University, Cisplantin at Michigan State University, and the Vitamin D technologies at the University of Wisconsin all came out of chemistry departments. If licensing is as strong in non-medical or non-engineering disciplines as anecdotal evidence suggests, it might negate any potential performance advantages in either of these units. It is also likely that not all medical or engineering schools are the same, and as such, measures of unit quality might actually reveal significant results.

### *Human Capital Resources*

The finding regarding the quality of science and engineering faculty suggests the central importance of this resource for achieving high levels of performance in technology transfer. In fact, this variable was the only one significant across all three measures of performance. This result is consistent with Mansfield & Lee's (1996) research on the contribution of universities to industrial innovation from the perspective of industry. Specifically, they found that institutions with more reputable faculties (also measured using National Academy of Sciences ratings) were more likely to be cited by industry as having contributed significantly to industrial innovation. Hence, it is perhaps not surprising to find that one benefit of being highly cited by industry is their interest in licensing technologies that, in turn, generate royalties. Furthermore, institutions with strong faculty reputations are probably able to negotiate more lucrative licensing deals than those universities that are not as highly regarded.

It may also be that institutions with less reputable faculties focus their licensing efforts more regionally and thus reduce their chances for negotiating a license with a large, wealthy, multinational firm. This was another phenomenon that Mansfield and Lee (1996) found. Namely, when industrial firms cited schools with less reputable faculties as being important contributors to industrial innovation, these schools were generally within 100 miles of the firms. Finally, if schools with lower faculty reputations are more locally focused, their licensing portfolio is probably more heavily weighed with smaller, less mature companies, the ones unlikely to be in a position to offer a university a highly lucrative licensing deal. Regardless the reason for the differential performance, it is evident that the quality of an institution's faculty is a critical resource associated with patenting, licensing, and licensing income, and as the resource-based view of the firm would predict, those institutions with stronger faculty reputations outperform those with less reputable faculties.

Regarding the size and age of the TTO, two human capital oriented control variables in the study, they also were positively predictive of performance, the former with licenses and licensing income and the latter with patents and licenses. These results are also consistent with prior research on organizational performance (Deeds et al., 1999) and indicative of the importance of strong skill sets and sufficient staff to manage the complex and time-intensive tasks associated with technology transfer practice.

### *Organizational Resource*

The one organizational resource investigated for this study was the private or public status of a university. In this case, the status of an institution does not appear to make a difference in terms of technology transfer performance on any of these outcomes. Hence, the perception of private schools as somehow being more effective at technology transfer, ceteris paribus, is unfounded. If at one time private universities did enjoy performance advantages, the recent increased emphasis by states for university participation in economic development may have afforded public institutions greater flexibility to engage in commercial activity (Wilson & Szygenda, 1990) and hence increased their own performance to match that of their private counterparts.

### *External Environment Effects*

The final area of investigation in this study involved the external environment effects on technology transfer performance, namely the entrepreneurial climate and venture capitalization of a state as well as the level of state support for higher education. The environmental variable results indicated a strongly negative relationship between venture capitalization and the number of licenses and licensing income for a university and a slightly negative relationship for number of licenses and the entrepreneurial climate variable. Furthermore, there was a strongly negative relationship between state support for higher education and licensing income for public institutions and a strongly positive one for private schools.

Regarding the venture capitalization variable, this result was puzzling, because it implies that schools in venture rich states underperform in relation to their counterparts in venture-poor states. Upon surface observation, this result seems counter to what the data might suggest considering that the top three performers in terms of licensing income (Columbia, UC-San Francisco, and Stanford) came from states with high levels of venture capital (California and New York). However, in looking at the data as a whole, there were a number of schools from states with high venture capitalization that are low performers in terms of licensing income.

While a visual examination of the data appears to affirm the accuracy of the regression result, it does not explain why this relationship might exist. One likely explanation for this association is that states with lower levels of venture capital also have fewer smaller companies or an overall environment that is not particularly supportive of the type of firms that might develop out of universities. Hence, in these states, technology transfer activity is de facto forced to emphasize a licensing strategy with large established firms, the very types of companies that are likely to generate the greatest amount of licensing income in the short term. Thus, the linkage between venture capital munificence and licensing income may be more indirect with small companies in a state being an intervening variable.

A second related explanation for this finding is that there may in fact be a positive relationship between a state's venture capital munificence but only with the in-state portion of its licensing income, an investigation that was beyond the scope of this study. However, when out of state income is considered as well, the relationship may have been reversed. Research by

Mansfield & Lee (1996) provides support for this explanation, particularly at institutions that have what they coined, faculty stars. Specifically, as mentioned earlier, they found that while the majority of university-industry linkages were within 100 miles of each other, universities with better faculty reputations (measured using the same National Academy of Sciences data used in this study) were more likely to have a national reach. Additionally, based on general observation of annual reports of technology transfer offices for this study, it appears that the licenses that generate the largest amounts of income are often with large companies located outside of that institution's state. Hence, it may be that the benefits of venture capital munificence are being accrued by institutions in less venture capital robust states who seek licenses with companies in states like California, Massachusetts, and New York where the opportunities for investment are greater. In the event that is true, schools located in states flush with venture capital may face particularly strong competition for licensing opportunities from the very best of the out of state schools.

In the case of the entrepreneurship climate variable, it was mildly significant (*p*=.058) in the positive direction in model two involving the number of licenses performance variable. Considering that this environmental measure is more broadly reflective of the climate for all kinds of young businesses, not just those needing venture capital, it would be expected to possibly have a different predictive effect on performance than the venture capital variable. Based on the result involving the entrepreneurship climate variable, then, it appears that universities with stronger overall climates for entrepreneurship (and hence the greatest likelihood for licensing opportunities with smaller firms), enjoy a small performance advantage over institutions located in states with weaker external environments of this kind.

The final finding of significance associated with the issues of location involved the state appropriations variable and licensing income. It was most interesting to find strong significance in the negative direction for public universities but strongly positive significance for private institutions, a result supportive of a resource-dependence theory explanation for the phenomenon.

Taking the public school result first, it appears that the incentive to seek alternative revenue sources when state funding is lower is considerable. These institutions may have sought to pursue the most promising licensing opportunities with shorter-term payoff than public schools with less threatened traditional resource streams and been rewarded with higher levels of income realized. Considering the legitimacy now afforded to institutions that support an economic development agenda, it may also be that public institutions with less state support may be seeking to leverage their involvement in technology transfer as a means of increasing their perceived level of excellence or relevance in the eyes of state legislators and taxpayers with the ultimate hoped for reward being increased state support.

In the case of private universities, they may be affected by support of public universities but in the opposite direction. Specifically, when resources are greater for public higher education, the overall economic health of the state is often made stronger, a finding with support in the literature (Paulsen, 1996). Thus, when the state's economy and workforce productivity is enhanced, private schools may benefit in the form of more lucrative opportunities for technology transfer. Additionally, in states where support of higher education is high, demand for private post-secondary education may be lower, increasing the pressure on the most critical resource to privates, tuition income. Recent research by Hu and Hossler (2000) is suggestive of a tuition-demand linkage such as this. With concern over tuition income heightened, then, private institutions may feel the need to develop new and risky income sources such as could be pursued through technology transfer. Similarly, in states with low levels of support for public higher education, student demand for private education may be higher, reducing pressure on the critical resource of tuition income. Hence, in this situation, private institutions would not feel as strong a need to advance their technology transfer programs.

### *Policy and Practice Implications*

This study has a number of important implications for policy makers and institutions. First, the study reveals useful insights about location related factors that impact performance. In general, schools located in states with an overall weak entrepreneurial climate are not necessarily disadvantaged, or are only at a mild disadvantage. What appears to be much more important is the venture capital munificence of a state. Specifically, universities considering ramping up their technology transfer efforts in venture robust states should be especially cognizant of the competition they will likely face from other schools seeking licenses with their state's young high technology firms. Furthermore, universities in relatively venture capital poor states need to recognize that expanding their technology transfer programs will likely require taking a more regional or national scope or seeking to develop their own venture capital programs, something that a number of institutions and their states have been doing in recent years.

A second important result with policy and practice implications involves the level of state appropriations. As the data revealed, state appropriations are strongly associated with technology transfer activity. However, it would be unwise for state policy makers to simply conclude that reducing support for higher education is the appropriate course of action for stimulating technology transfer at public institutions. Instead, policy makers might be wise to consider a realignment of incentive structures in order to better ensure that universities pursue in-state opportunities for technology transfer in ways that stimulates overall economic growth. One way this might be achieved is through incentive budgeting. Specifically, states might make available to institutions a separate pool of monies that are allocated on the basis of achieving particular economic development goals. Thus, universities might see new opportunities to benefit from state support rather than worry that it is a critical source of base income that could be threatened.

A third finding with particularly strong implications involved the results with the federal and industry R&D variables. As the study showed, federal and industry R&D investment is clearly positively associated with patenting, but there appears to be a disconnect in the linkage beyond that point. Intuitively, it would seem that the explanatory impact of federal and industry R&D on a technology further down the commercialization path would become progressively weaker (i.e., many other factors impact the marketplace potential of an end product or even the appeal of a new but underdeveloped technology to an outside firm). Yet, the R&D related results nonetheless suggest that if one important goal of academic R&D investment is the production of new products or processes for societal benefit, it would be useful to investigate ways to better ensure that the handoff or partnering with industry does occur. For example, funding agencies might place greater emphasis in granting criteria on plans for partnering with industry in the latter stages of a technology's development and/or make clear that funds for latter stages of development could be made available.

Finally, the results of this study highlight the changing nature of higher education's mission. Whereas the economic development role for America's research universities had historically centered on the land-grant institutions, today, it has been widely adopted across the spectrum of research institutions. Etzkowitz (1998) referred to this fundamental mission expansion as a second academic revolution. Like the first academic revolution during the latter half of the 19th Century where universities shifted from a focus on cultural preservation to the creation of new knowledge, higher education has now broadened its mission to include the translation of research into bona fide products and new enterprises for the practical benefit of society (Etzkowitz, Webster, & Healey, 1998). As this study has shown, universities are heavily engaged in commercial activity in ways that have brought them in much closer association with industry. Given that this is generally unfamiliar territory for the majority of institutions and few appear to enjoy substantial financial benefit from it, university leaders and policy makers alike would be wise to consider the degree to which this expanded mission is appropriate for all research universities.

### *Study Limitations*

One limitation of the study involves the operationalization of several variables. For example, the faculty quality measure was calculated from data published by the National Academy of Sciences in 1993. While their data set is one of the most respected in academia as being methodologically sound and a reasonable approximation to the true differences in faculty quality among institutions, it is nonetheless ratings of academics by academics as opposed to ratings based on other objective measures such as citation counts. The entrepreneurial climate variable also may not have adequately captured differences within a state. For instance, Stanford University's experience near Silicon Valley is probably different than UCLA in Los Angeles. Unfortunately, the sample size precluded statistical analyses any more focused than at the state level.

A second limitation centers on the cross-sectional design of the study. Measuring performance at a point in time, albeit addressed somewhat by calculating three-year averages, does not capture change over a period of years. Considering the long time frames often involved in commercializing research, a longitudinal study design would have provided additional insights on the phenomenon.

Finally, the study does not address any of the cost-effectiveness issues that are of obvious additional importance. For example, there is no guidance as to the direct and indirect costs of adding additional technology transfer office staff even though the data revealed a direct and positive relationship between staff size and performance on two of the outcome measures.

### *Opportunities for Future Research*

A number of useful opportunities for future research emerged from this study. First, a qualitative study focused on technology transfer practitioners or faculty actively involved in patenting and licensing, for instance, might reveal excellent insights into the explanation of findings reported here. A second area of research would be to test different operationalizations of some of the variables. For example, the state measures of venture capital and entrepreneurial climate might be improved by substituting a regional one since technology transfer certainly occurs across state lines.

Given the strongly contrasting results between private and public institutions as it relates to the level of state appropriations, further investigation of this dynamic would also be informative. Exploring R&D and commercialization incentive structure differences would be an appropriate place to begin. Additionally, it would be useful to broaden the measures of performance to include university start-up formation or affiliations with firms that go public, two additional measures of performance not addressed in this study. Finally, it would be important to explore other factor sets not investigated. These might include measures of the institutional culture, a potential source of motivation for faculty entrepreneurial activity (Roberts, 1991). Other potential variables might be specific policies governing faculty involvement in technology transfer such as the equity policy, policy on leaves of absence for commercial activity, and tenure policies that may explicitly recognize commercial involvement as an important and appropriate function for faculty.

## *Conclusion*

This research represents the first national study of its kind exploring specific factors that may explain differential performance with technology transfer. The results suggest that both theoretical lenses, the resource-based-view of the firm and resource dependence theory, are useful ones for understanding the ways in which particular internal and external resources impact technology transfer activity. Considering the increasing expectations for higher education to serve specific economic development needs, this study provides a useful window into what institutional resources or capabilities may contribute to higher levels of performance. While it does not specifically address the normative question of whether or not higher education should be engaged in entrepreneurial activity, the study does offer informed guidance to institutions and policy makers that are clearly pursuing active engagement with academic commercialization activities. Hence, this study has sought to advance our knowledge in this area and to provide key stakeholders with useful insights on important considerations to its practice.

## *Notes*

[1] Dollars indicated for each invention reflect the total revenues generated as of 1998.

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# Students' Perceptions of Their Classroom Participation and Instructor as a Function of Gender and Context

The purpose of the present study was to explore the influence of individual and contextual factors on students' assessments of their own participation in the university classroom and of their professor's classroom behaviors. Classroom participation is considered by both female and male students to be one of the factors related to effective learning and to result in more positive views of the learning experience (Sadker & Sadker, 1994). Perceptions of the overall amount, the form of student participation, and students' general activity level were examined in the present study. Differences in the form of student participation are important, because certain types of participation are expected to be more responsible for students' impressions of the university classroom (e.g., more intrusive styles such as interrupting), to contribute more to effective learning and positive experiences (e.g., length of exchange), and to be more likely to demonstrate gender differences. Cornelius, Gray, and Constantinople (1990) and others (e.g., Fassinger, 1995a, 1995b) have emphasized that student participation is determined

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by multiple factors and, unless multiple factors are examined, the nature of student-faculty interaction in the college classroom will most likely be misrepresented. The contextual factors considered in the present study were class size, class composition in terms of gender balance, discipline, gender of the instructor, and specific instructor behaviors that encourage participation. In addition, the individual factors of student gender, age, and students' perceived level of general activity in the university classroom were examined, as well as students' perceptions of a number of specific student behaviors.

This research is informed by a series of studies dealing with the "chilly climate" construct (Hall & Sandler, 1982, 1984; Sandler & Hall, 1986). The term applies to the aggregated impact of a host of micro inequities and forms of systemic discrimination that disadvantage women in academic environments. Examples include: the sexist use of language; presentation of stereotypic, disparaging views of women; differential interaction patterns of professors as a function of student gender; paucity of women faculty as role models and mentors; and gender-based differential attributions. Although some investigators have failed to find evidence of the operation of the construct (Crawford & MacLeod, 1990; Heller, Puff, & Mills, 1985; Howard & Henney, 1998; Howard, Short, & Clark, 1996; Strenta, Elliott, Adair, Matier, & Scott, 1994), documentation supporting the existence of a chilly climate has been reported by a number of other researchers (Canada & Pringle, 1995; Janz & Pyke, 2000; Pyke, 1997; Sands, 1998; Seagram, Gould, & Pyke, 1998; Stalker & Prentice, 1998; The Chilly Collective, 1995; Williams, 1990). Pascarella et al. (1997), for example, found modest support "for the hypothesis that a perceived chilly campus climate can, in fact, have negative implications for women's cognitive growth" (p. 123). In an extension of this work, Whitt, Edison, Pascarella, Nora and Terenzini (1999) obtained corroborating results.

Yet another consequence of the effect of a chilly climate may be a reduced propensity on the part of women students to participate in the university classroom. Several investigators have specifically explored the relevance of the chilly climate construct as an explanation for gender differences in classroom participation. Fassinger (1995a, 1995b), based on a questionnaire survey administered to students and professors in 51 classes, concludes that male students are more likely to participate in classes than females and that the participation of female students is affected by the emotional climate of the classroom and their level of confidence. These results are not inconsistent with the chilly climate interpretation of women's academic experiences. Contrary to expectation, however, was the finding that faculty traits, including gender, had no significant effect on class participation. Other investigators, however, report markedly different results with respect to faculty influence on participation (Nunn, 1996; Statham, Richardson, & Cook, 1991). Canada and Pringle (1995) for example, in an observational study of classroom interactions of students and faculty, conclude that gender matters: "The behaviors of female students and of both male and female professors were strongly related to whether or not male students were present in the classroom, and the behaviors of both female and male students in mixed-gender classes were related to the proportion of male students" (p.179).

In addition to factors subsumed under the chilly climate rubric, there are other contextual factors that may also potentially influence student participation. One such variable is class size. It has been assumed that many students are reluctant to participate in large classes, and hence many universities have structured smaller group meetings for discussion (e.g., tutorials) as adjuncts to large group lectures. In fact, Constantinople, Cornelius, and Gray (1988), in an observational study of over 40 classes, consistently found negative correlations between number of students present and total student response. These researchers had trained 58 undergraduate students to serve as observers in classes in which they were regularly enrolled. When class size was entered as a covariate, student gender effects, favoring more participation from males, moved from marginal to full significance, whereas instructor gender effects were no longer significant, suggesting that instructor gender effects had been carried by differences in class size. In a subsequent study by the same group of researchers (Cornelius et al., 1990), class size was found to be one of the three significant variables affecting the type and amount of student-faculty classroom interactions. Furthermore, Crawford and MacLeod (1990) reported that class size affected all dimensions of the classroom climate examined in their study, with greater rates of participation reported in smaller classes. Nunn (1996) notes that although her data failed to reveal a strong relationship between participation and class size, the trend is for fewer students to speak and to spend less time participating in larger (35 or more students) classes. Thus, variations in class size may account for at least some of the phenomena interpreted as reflections of chilly climate effects.

Class composition in terms of gender balance is an additional contextual factor examined in the present study. To date, few studies have investigated this factor. Are women or men more likely to participate in a class in which students of their gender are in the majority? In a study by Krupnick (1985), in which classes were videotaped, males were found to dominate classroom discussions, particularly in classes with male instructors and a majority of male students. Cornelius et al. (1990) have also reported that there is some preliminary support for the suggestion that female students may be more affected by characteristics of the university classroom, such as class composition and size, than are male students. They found that, when there were more males present in a class, there were proportionately fewer interactions directed to female students by both male and female instructors, and the interactions directed by female instructors to their female students were shorter in length. More recently, Janz and Pyke (2000) have suggested that there is variability in students' sensitivity to the characteristics of the university environment.

The discipline of the course has been found to be another contextual factor that influences students' perceptions and participation. Constantinople et al. (1988) reported higher student participation in arts and social science courses than in natural science courses. True to the stereotype, the natural science classes tended more toward the lecture format, whereas humanities classes tended more toward a discussion format, and the social science disciplines had a more or less balanced distribution of the two formats. In their subsequent study (Cornelius et al., 1990), discipline was one of the three significant factors affecting student-instructor interactions.

Instructor gender has been examined in previous studies as a contextual factor that is expected to influence students' participation rates. Consistent with the claims of Hall and Sandler (1982), it could be argued that women students with female instructors, supervisors, or mentors would experience the university environment as a more benign, less alienating setting (Pyke, 1997) and hence feel more comfortable about participating in class. Certainly the reports of a number of authors (Bruce, 1995; Field & Caldwell, 1979; Tidball, 1973, 1976; Worthington & Stern, 1985) suggest that same-gender professor-student dyads may be more beneficial or productive than cross-gender pairings. With respect to specific classroom interactions, there are some conflicting results on the effects of instructor gender. Karp and Yoels (1976) and Sternglanz and Lyberger-Ficek (1977) both found in their observational studies that female students participated more in classes taught by female than male instructors. There is evidence from survey research (Crawford & MacLeod, 1990) that female instructors are perceived in general as being more effective in creating a participatory climate for all students, both female and male. In three studies, males have been reported as being more active participants than females, but only with male instructors (Karp & Yoels, 1976; Pearson & West, 1991; Sternglanz & Lyberger-Ficek, 1977). Karp and Yoels (1976), for example, reported that male students were twice as likely as female students to respond to a comment made by a male instructor, and male instructors were more likely to call on male than female students, whereas no such differences occurred with female instructors. However, incommensurate results have been reported in other research (Boersma, Gay, Jones, & Morrison, 1982; Brooks, 1982; Constantinople et al., 1988). For example, Constantinople et al. (1988) found that the highest participation rates in their study were consistently those of male students in female-instructed arts and social science courses. Similarly, Brooks (1982) reported more male participation (i.e., interrupting, higher frequency and longer duration of interactions) among first year social work students, but only in classes taught by female instructors. In the Boersma et al. (1982) study, in female-taught classes, male interactions were characterized by more student-teacher exchanges than were female interactions. Resolution of these contradictory results with respect to the relation between instructor gender and student participation requires further research that will take into consideration a number of additional contextual factors, for example, class size (Constantinople et al., 1988; Cornelius et al., 1990).

There is also the contextual issue of instructor behaviors. Do specific instructor behaviors encourage or conversely curtail student participation and are such behavior patterns related to instructor gender and/or student gender? In the few empirical studies conducted to date, there is no clear evidence for a pervasive bias either by male or female instructors in the behaviors measured. The few differences that have been reported, however, have favored males. Karp and Yoels (1976) reported that male instructors were more likely to call directly on male than on female students. Constantinople and colleagues (1988) observed that males received more acknowledgment of their contributions to class discussion and more elaboration of their remarks than did females. This effect was independent of instructor gender, discipline of course, and class size.

In addition to reported gender differences in language style and communication patterns (see Wood, 1994), a few research investigations have also found differential participation effects in the university classroom as a function of student gender. In general, men have been shown to talk more (e.g., Hall, 1984) and to interrupt more frequently than women (McMullen, 1992). When the more specific environment of the university classroom has been examined empirically, support for gender differences favoring males has been inconsistent. However, when differences have been reported, typically males have been found to participate more frequently and more assertively than do females (Brooks, 1982; Constantinople et al., 1988; Crawford & MacLeod, 1990; Karp & Yoels, 1976; Sternglanz & Lyberger-Ficek, 1977).

Most investigations of gender differences in participation rates have failed to take sufficient contextual factors into account, have generally included at most two factors, and some have employed global measures of students' participation rates. In the current study, we examined different forms of class participation, such as raising one's hand versus the more aggressive style of interrupting, as well as students' perceptions of the length of their interactions. The present study was designed to determine the effects of a number of contextual factors, as well as student gender, on these different forms of participation and also on students' impressions of their instructor's behaviors.

In addition to overall participation rates and differences in various forms of participation, the present study incorporated the additional individual factor of students' general activity level in the classroom. The university classroom has been described as having the organizational feature of "consolidation of responsibility"students know that a small percentage of the class can be relied upon to carry most of the discussion/participation responsibility (Karp & Yoels, 1976). Karp and Yoels (1976) and Nunn (1996) have reported that on average a very small number of students are responsible for the bulk of university classroom participation. In the former study, 4 to 5 students accounted for 75% of the total interactions in classes with less than 40 students, and 2 to 3 students accounted for 51% of the total interactions in classes of more than 40 students. Similarly, Smith (1992) has found that a few students, usually the highest participators, begin early and participate continually throughout the semester. Furthermore, the overall participation rate seems to increase in the early stages of the semester as students assess the system, then plateaus, then tails off toward the end of the semester, when only a small core of high participators are still active. In the present study, students' perceptions of their own activity level in a specific university course were assessed.

This study explores student perceptions of their own participation and of certain professor behaviors and does not measure actual participation rates or provide observations of professorial classroom performance. Certainly perceptions and objective indices of "reality" may vary (Karp & Yoels, 1976), although Statham et al. (1991) report a high level of consistency across three sources of information—professor interviews, observations of professor behaviors, and student ratings of professors. Similarly, Nunn (1996) found a strong relationship between student and teacher perceptions of selected teaching techniques designed to facilitate communication and actual observational data. In any event, it is important to investigate student perceptions, because these perceptions (even if not congruent with reality) have been shown to influence students' judgments, decisions, and development in a variety of contexts. Consider for example, the imposter phenomenon (King & Cooley, 1995) or the denial of personal disadvantage (Crosby, Pufall, Snyder, O'Connell, & Whalen, 1989) or the work of Pascarella and his colleagues with respect to cognitive development (Pascarella et al., 1997; Whitt et al., 1999).

In summary, the goal of the present study was to determine the impact of a number of contextual features of the university classroom on the perceived participation of students and on students' perceptions of their instructor. More specifically, student gender, the form of their interactions, and their general level of activity in the classroom were all examined in light of these contextual factors. Based on the findings in the literature and the chilly climate construct, it was predicted that female students as compared with male students would perceive themselves as participating less overall, using less assertive modes of participation, participating more in classes taught by female faculty, and having more positive perceptions of female professors. Furthermore, we hypothesized that active students would hold more positive perceptions of their classroom experience than would less active students, as would students in smaller classes and students in arts/social science classes as compared to natural science classes. Finally, because some recent research has indicated that older students participate in class more than younger students (Howard & Henney, 1998; Howard et al., 1996), additional analyses were conducted to explore the effects of student age on self perceptions of participation.

## *Method*

### *Participants*

The participants were 541 students from a university with an undergraduate population of approximately 13,000, located in a midsized Canadian city. The students were solicited from 18 classes (see Table 1): 11 classes in arts/social sciences (5 female and 6 male instructors) and 7 classes in the natural sciences (4 female and 3 male instructors). All students who were in attendance agreed to participate.

Twenty-two students were excluded, 10 because of incomplete information and an additional 12 as a result of indicating that they "never" or "rarely" attended class. Subsequently, 9 students (6 female, 3 male) were identified as multivariate outliers (based on Mahalanobis' distance) and were excluded from the analyses. In the resulting sample of 270 females and 240 males, 20% of the females and 17% of the males were 25 years of age or older.

TABLE 1

Class Size and Proportion of Female Students by Instructor Gender and Discipline of Course

| Female Instructors | | | | | | Male Instructors | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arts/Social Science | | | Science | | | Arts/Social Science | | | Science | | |
| Course | S[a] | %F[b] | Course | S | %F | Course | S | %F | Course | S | %F |
| Psy-2 | 36 | 83 | Eng-2 | 31 | 9 | Engl-2 | 28 | 59 | Eng-2 | 50 | 17 |
| Engl-2 | 36 | 86 | Bio-3 | 43 | 51 | His-2 | 24 | 58 | Bio-4 | 20 | 59 |
| His-2 | 22 | 57 | Bio-3 | 47 | 47 | PolSc-3 | 32 | 55 | CompSc-4 | 19 | 19 |
| PolSc-3 | 24 | 46 | CompSc-4 | 18 | 28 | Psy-3 | 36 | 78 | | | |
| Engl-3 | 18 | 67 | | | | Engl-3 | 19 | 75 | | | |
| | | | | | | Rec-4 | 16 | 81 | | | |
| Mean | 27.2 | 67.8 | | 34.8 | 33.8 | | 25.8 | 67.7 | | 29.7 | 31.7 |

NOTE: Courses are abbreviated as follows: Bio=Biology; CompSc=Computer Science; Eng=Engineering; Engl=English; His=History; PolSc=Political science; Psy=Psychology; Rec=Recreology. The number following the course abbreviation indicates the year of the course (e.g., 2 represents second year). $N = 519$; includes the 9 students who were identified as multivariate outliers.

[a] S=Size of class.

[b] %F=Percentage of female students in the class.

Although the sample of students participating in this study is reasonably large ($N$ = 510), students were drawn from a limited number of classes ($N$ = 18) and from a single institution. These restrictions may raise questions about the generalizability of the results. The 18 classes were randomly selected to include second-, third-, and fourth-year level courses and to cover a cross-section of disciplines within the humanities/social sciences and the natural sciences. In most cases, a course with a male instructor was matched with that of a female instructor. Classes were considered for selection if they had a minimum of 20 students (based on registration information). The sample, with a mean age of 23.2 and 53% females, is quite reflective of the undergraduate student population at this university (mean age: 25.2; 59% females). In keeping with the vast majority of Canadian universities, this institution is government supported and quite characteristic of the large group of medium to small-sized universities in the country, offering both undergraduate and graduate programs across a wide array of disciplines. Thus, there is some reason to believe that our findings will be comparable to those that would be found in other institutions and in other classes.

### *Measures*

The 24-item Classroom Experience Questionnaire was designed to measure students' perceptions of their own behavior, of other students' behavior, and of their instructor's behavior. Items pertaining to student behaviors were derived from Hall and Sandler's (1982) report on the college classroom climate. Items pertaining to instructor behaviors were adapted from the work of Heller, Puff, and Mills (1985). The items assess students' perceptions of their own or their instructor's behavior in a particular university class. The items have a 5-point Likert response format. A higher score indicates that students perceived a greater frequency or a more positive behavior occurring. In addition, items concerning students' age, gender, and course code were included at the end of the questionnaire.

*Activity level.* Two items in the questionnaire measured students' perceptions of their general activity level in a particular class. The two items were "In this course, how often do you ask questions, make comments, and/or answer questions?" and "In this course, when the professor directs a question to the class, how often do you answer?" The responses for both items were: (1) Never, (2) Rarely, (3) Occasionally, (4) Often, (5) Very Often. The two items were summed to give a total activity level score. The distributions of the activity level scores are presented separately by gender in Table 2. Students were categorized as Less Active if they had a score of 2, 3, or 4 (64% of the students) and Active if they had a score of 5 or higher (36% of the students). This categorization resulted in 327 Less Active students (56.3% females, 43.7% males) and 183 Active students (47.0% females, 53.0% males).

*Students' perceptions of their own behavior.* Students' perceptions of their own particular classroom behavior were measured for two forms of participation: the more frequently used and less intrusive method of raising one's hand (one item) and the more intrusive method of interrupting (two items; $\alpha = 0.64$). The three items were as follows: "When you participate in this course, how often do you get the professor's attention by raising your hand and waiting for the professor to choose you?"; "When you participate in this course, how often do you get the professor's attention, not by raising your hand, but rather by talking out when there is a pause in the conversation or lecture?"; "When you participate in this course, how often do you get the professor's attention by breaking into the ongoing conversation or lecture in order to ask a question or to make a comment?" In addition, students' perceptions of the length of their exchanges (two items; $\alpha = 0.64$) were assessed. The items were "In this course, how many back and forth exchanges do you have on the average in an interaction with the professor?" and "In this course, what is the typical length of your questions, comments, and/or answers to the professor?" For these two items and for subsequent items that do not refer to the perceived frequency of a behavior, the response choices reflect the question asked (e.g., 1 = An average of one "back and forth" exchange in an interaction; 5 = An average of five or more "back and forth" exchanges in an interaction). As a means of examining the aggregate effect of these three particular student behaviors, a student response

TABLE 2
Distribution of Activity Level Scores by Gender

| | Females | | Males | | Total | |
|---|---|---|---|---|---|---|
| Activity level score | *n* | % | *n* | % | *n* | % |
| 2 | 87 | 32.2 | 65 | 27.1 | 152 | 29.8 |
| 3 | 36 | 13.3 | 30 | 12.5 | 66 | 12.9 |
| 4 | 61 | 22.6 | 48 | 20.0 | 109 | 21.4 |
| 5 | 31 | 11.5 | 24 | 10.0 | 55 | 10.8 |
| 6 | 28 | 10.4 | 37 | 15.4 | 65 | 12.8 |
| 7 | 11 | 4.1 | 15 | 6.3 | 26 | 5.1 |
| 8 | 8 | 2.9 | 13 | 5.4 | 21 | 4.1 |
| 9 | 7 | 2.6 | 6 | 2.5 | 13 | 2.5 |
| 10 | 1 | 0.4 | 2 | 0.8 | 3 | 0.6 |
| Total | 270 | | 240 | | 510 | |

score (Total Student Response) was obtained by summing across these three behaviors.

It should be noted that the independent variable of perceived activity level, which may appear to overlap with the dependent variables exploring perceptions of more specific student participatory behaviors such as hand raising or interrupting, is actually quite distinct both conceptually and methodologically. With respect to the former, it is possible, for example, for a student to perceive her- or himself as very active in the classroom but not as frequently interrupting or speaking out. Thus, the independent activity variable explores a student's sense of her/his overall participation level, whereas the dependent variables assess the form in which the participation is perceived to be expressed. Methodologically the independent activity variable is treated as a dichotomous variable (Active, Less Active), whereas the dependent measures are continuous.

*Students' perceptions of their instructor's behavior.* Students' perceptions of their instructor's behavior were assessed for three particular behaviors: instructor's positiveness (two items; $\alpha = 0.78$), personalizing (two items; $\alpha = 0.50$), and probing for elaboration (one item). The five items were as follows: "In this course, how does the professor react to the questions or comments you make in class?" (Very Negative to Very Positive); "In this course, how does the professor react to your questions, comments, and/or answers?" (Strongly Discourages to Strongly Encourages); "In this course, does the professor smile, nod, and generally communicate interest and approval in what you have to say?"; "In this course, how often does the professor call you by name?"; "In this course, does the professor probe for elaboration or further extension when you answer a question or make a comment?" In addition, as for the student behaviors, an aggregate instructor score was calculated (Total Instructor Score). Finally, one item assessed students' overall impression of their instructor. The item was "Please give us your overall impression of the professor in this course as pertains to yourself by responding to the following description. In this course, the professor encourages and facilitates my participation. The professor, in an overt and/or subtle manner, shows his/her confidence in and/or value of me as a student" (Very Untrue to Very True).

*Covariates.* The covariates of Class Size and Proportion of Females were based on the total number of students and proportion of females for each of the 18 classes (see Table 1).

### *Procedure*

The questionnaire was group administered to each classroom of students by a female research assistant and required approximately 15 minutes to complete. Questionnaires were administered in the 10th or 11th week of a 13-week semester. Students were informed that the purpose of the study was to investigate the classroom experience of university students, that their participation was voluntary, and that their responses would remain confidential. Respondents were instructed to complete the questionnaire according to their own perceptions of the university class in which the questionnaire was administered. The treatment of participants was in accordance with the ethical standards of both the Canadian and American Psychological Associations.

### *Data Analyses*

The data were analyzed in two series of 2 x 2 x 2 x 2 ANCOVAs: one on students' perceptions of their own behaviors and a second on their perceptions of their instructor's behaviors. The four independent variables were students' Activity Level (Less Active, Active), Student Gender, Instructor Gender, and Discipline (Arts/Social Science versus Natural Science); the two covariates were Class Size and Proportion of Females. In the first series of analyses, students' perceptions of their own behaviors were analyzed for three particular student behaviors and for a Total Score (to examine the aggregate effect of the particular behaviors). In the second series of analyses, students' perceptions of their instructor were analyzed for three particular instructor behaviors and for a total aggregate instructor score. To decrease the possibility of reporting spurious results, the Bonferroni correction of alpha for multiple tests was implemented. Only results achieving a probability value of 0.0125 are reported as statistically significant (0.05/4, corrected for one aggregate measure and three particular behaviors in each series of analyses). Finally, students' Overall Impression of their instructor was analyzed separately.

The four-way ANCOVA analyses were performed using the SPSS (Version 6; SPSS, Inc., 1993) MANCOVA program which provides adjusted means (i.e., adjusted for the two covariates) and eta squared values ($\eta^2$), an estimation of effect size. When comparing results of different studies, the order of entry of covariates will affect their relative importance. If the traditional experimental method, which previously was the default in the SPSS ANCOVA program (Version 4, 1990), is employed, a hierarchical structure for the partitioning of variance is used. In this method, a covariate's importance is a function of both its unique variance and any variance that it shares with variables that are entered subsequently. However if the unique method is employed, which is the current default in the SPSS ANCOVA program (Version 5, 1992 and

Version 6, 1993), then only the unique variance of a variable is used to determine its contribution. Some of the differing results in the extant literature may be due to the fact that samples have not only differed on relevant factors (e.g., class size) but also on the statistical procedures (e.g., unique versus experimental) employed to analyze the results. In the present study, the unique method, in which only the unique variance of each variable (i.e., covariates, independent variables) is used to measure its effect on the dependent variable, was employed.

## *Results*

### *Sample Characteristics*

Chi square analyses were used to examine the characteristics of our sample. These analyses indicated that there were no significant differences by Instructor Gender (male, female instructors) in the distribution of Active and Less Active students (see Table 3). There were, however, significant differences in the distribution of Active and Less Active students by Student Gender (male, female), $0^2$ (1, $N$= 510) = 4.05, $p$< 0.05, with more male Active students than expected. There were differences by Discipline (arts/social science, natural science), $0^2$ (1, $N$= 510) = 4.20, $p$< 0.05, with more Active students in arts/social science courses than expected.

### *Students' Perceptions of Their Own Behavior*

Four-way ANCOVAs were conducted on Total Student Response and the three particular student behaviors contributing to this aggregate score. The two covariates of Class Size and Proportion of Females were

TABLE 3

Percentage of Students in Less Active and Active Participation Groups as a Function of Student Gender, Instructor Gender, and Discipline

| | Less Active | Active |
|---|---|---|
| Student gender[a] | | |
| Females | 68 | 32 |
| Males | 60 | 40 |
| Instructor gender | | |
| Females | 63 | 37 |
| Males | 65 | 35 |
| Discipline[a] | | |
| Arts/social science | 60 | 40 |
| Science | 69 | 31 |

[a] Chi-square distributions differ significantly at $p < 0.05$.

not significant and thus did not account for a significant amount of unique variance given the independent variables included in our analyses. There were significant main effects of Activity Level, Student Gender, and Discipline, as well as four significant two-way interactions involving Activity Level and one significant interaction of Discipline and Instructor Gender. For the significant effects, F ratios are presented in Table 4 and eta squared values are included in parentheses in the text. Adjusted means are provided in Table 5.

The main effect of Activity Level was significant for Total Student Response ($\eta^2 = 0.27$) and for each of the three particular student behaviors, with the extent of the effect varying by behavior: Hands-up ($\eta^2 = 0.18$), Interrupting ($\eta^2 = 0.10$), and Length of interaction ($\eta^2 = 0.16$), with Active students having higher scores than Less Active students. The main effect of Student Gender was significant for Total Student Response ($\eta^2 = 0.03$) and for two of the three particular student behaviors: Interrupting ($\eta^2 = 0.02$), and Length of interaction ($\eta^2 = 0.02$), with males having higher scores than females. The main effect of Discipline was significant for Total Student Response ($\eta^2 = 0.01$) and for Length of

TABLE 4

Summary of Significant Effects of the Analyses of Covariance ( values)

| Source | *df* | Perceptions of Own Student Behavior[a] | | | |
|---|---|---|---|---|---|
| | | Aggregate Score | Hands-up | Interrupting | Length |
| Activity level (A) | 1 | 179.06** | 107.08** | 53.72** | 96.66** |
| Student gender (S) | 1 | 16.28** | 3.86 | 9.94** | 9.46** |
| Discipline (D) | 1 | 6.51* | 1.78 | 0.08 | 21.44** |
| A x S | 1 | 6.43* | 0.66 | 8.52* | 1.55 |
| A x D | 1 | 6.83** | 2.82 | 0.18 | 12.46** |
| Instructor gender x D | 1 | 4.69 | 8.67* | 0.2 | 1.22 |
| *S* within-group error | 492 | −0.29 | −1.73 | −0.54 | −0.36 |
| | | Perceptions of Instructor's Behavior[a] | | | |
| | | Aggregate Score | Positiveness | Personalizing | Probing |
| Activity level | 1 | 123.52** | 72.73** | 91.19** | 48.30** |
| Discipline | 1 | 0.02 | 6.42* | 0.14 | 16.87** |
| *S* within-group error | 492 | −0.49 | −0.51 | −0.94 | −1.35 |
| | | Overall Impression of Instructor | | | |
| Activity level | 1 | 17.48** | | | |
| S x Instructor gender | 1 | 4.34* | | | |
| *S* within-group error | 492 | −1.01 | | | |

NOTE: Values in parentheses represent mean square errors. *S* = subjects.
[a] Significance values corrected for four student and for four instructor dependent variables.
$*p < 0.05$. $**p < 0.01$.

TABLE 5

Adjusted Means for Analyses of Covariance with Factors Activity Level by Student Gender by Instructor Gender by Discipline.

| | Less active ($n$ = 327) | | | | | | | | Active ($n$ = 183) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Females | | | | Males | | | | Females | | | | Males | | | |
| | FI | | MI | | FI | | MI | | FI | | MI | | FI | | MI | |
| Variable | A/S | Sc | A/S | Sc | A/S | Sc | A/S | Sc | A/S | Sc | A/S | Sc | A/S | Sc | A/S | Sc |
| $n$ | 57 | 40 | 70 | 17 | 19 | 55 | 27 | 42 | 36 | 12 | 33 | 5 | 21 | 32 | 24 | 20 |
| Perceptions of Own Student Behavior | | | | | | | | | | | | | | | | |
| Aggregate score | 1.55 | 1.29 | 1.43 | 1.45 | 1.62 | 1.37 | 1.48 | 1.64 | 2.29 | 1.81 | 2.46 | 1.75 | 2.64 | 2.17 | 2.50 | 2.60 |
| Hands-up | 2.22 | 1.66 | 1.96 | 1.99 | 2.36 | 1.88 | 1.76 | 2.53 | 3.65 | 2.64 | 3.66 | 3.39 | 4.04 | 3.19 | 3.90 | 3.85 |
| Interrupting | 1.39 | 1.24 | 1.27 | 1.43 | 1.33 | 1.35 | 1.26 | 1.51 | 1.73 | 1.77 | 1.93 | 1.33 | 2.11 | 2.19 | 1.99 | 2.47 |
| Length | 1.39 | 1.17 | 1.32 | 1.19 | 1.54 | 1.15 | 1.57 | 1.32 | 2.17 | 1.42 | 2.39 | 1.35 | 2.48 | 1.63 | 2.30 | 2.10 |
| Perceptions of Instructor's Behavior and Overall Impression | | | | | | | | | | | | | | | | |
| Aggregate score | 2.79 | 2.52 | 2.48 | 2.57 | 2.50 | 2.76 | 2.57 | 2.95 | 3.37 | 3.46 | 3.49 | 3.19 | 3.94 | 3.51 | 3.46 | 3.52 |
| Positiveness | 3.41 | 3.46 | 3.17 | 3.44 | 3.28 | 3.57 | 3.32 | 3.92 | 3.85 | 4.24 | 3.85 | 4.21 | 4.18 | 4.18 | 3.93 | 4.45 |
| Personalizing | 2.14 | 2.09 | 1.94 | 2.12 | 1.80 | 2.30 | 2.06 | 2.54 | 2.96 | 3.11 | 3.01 | 2.83 | 3.91 | 3.36 | 3.00 | 2.95 |
| Probing | 2.86 | 1.49 | 2.22 | 1.70 | 2.32 | 2.04 | 2.08 | 1.84 | 3.21 | 2.63 | 3.71 | 1.88 | 3.52 | 2.48 | 3.46 | 2.77 |
| Overall impression | 3.99 | 3.90 | 3.27 | 3.55 | 3.60 | 3.81 | 3.32 | 4.20 | 3.92 | 4.42 | 3.85 | 3.84 | 4.13 | 4.50 | 4.27 | 4.38 |

NOTE: Total $N$ =510 students. Covariates are class size and proportion of females in each class. FI = female instructor classes; MI = male instructor classes. A/S = Arts/Social Science classes; Sc = Natural Science classes.

interaction ($\eta^2 = 0.04$), with students in arts/social science courses having higher scores than students in science courses.

There were, however, four two-way interactions involving the Activity Level variable. For Student Gender, the Activity Level by Student Gender interaction was significant for Total Student Response ($\eta^2 = 0.01$) and for the particular behavior of Interrupting ($\eta^2 = 0.02$): Active male students rated their participation and interrupting higher than did their Active female peers, whereas among Less Active students males and females did not differ, thus indicating that the gender difference occurred predominantly among Active students.

For Discipline, the Activity Level by Discipline interaction was significant for Total Student Response ($\eta^2 = 0.01$) and for Length of interaction ($\eta^2 = 0.03$): Active students in arts/social science classes rated their participation higher and perceived their interactions to be longer than did their Active peers in science classes, whereas Less Active students in arts/social science and science classes did not differ. This is further evidence that, for students who perceive themselves as being Less Active, contextual or situational factors do not appear to affect their university classroom behaviors. The Less Active students' responses were, in general, quite similar across all cells in the analyses (see Table 5). For Discipline, there was also a significant Discipline by Instructor Gender interaction effect for the non-intrusive style of participating by Hands-up ($\eta^2 = 0.02$): Among students with female instructors, students in arts/social science classes rated their participation by Hands-up higher than did their peers in science classes, whereas students with male instructors did not differ by Discipline.

### *Students' Perceptions of Their Instructor's Behavior*

Four-way ANCOVAs were conducted on Total Instructor Score and the three particular instructor behaviors contributing to this aggregate score. In contrast to the student behaviors, the two covariates of Class Size and Proportion of Females were significant. For Total Instructor Score, the covariate of Class Size was inversely related and accounted for a significant amount of unique variance ($\eta^2 = 0.06$). For the three particular instructor behaviors, both covariates were significant for each behavior, however the direction of effect varied by covariate and by independent variable. The covariate of Class Size was significant and inversely related to the instructor behaviors of Positiveness, Personalizing, and Probing for Elaboration ($\eta^2$s = 0.03, 0.06, 0.03). The covariate of Proportion of Females was significant and positively related to Positiveness and Personalizing ($\eta^2$s = 0.02, 0.02) and inversely related to Probing for Elaboration ($\eta^2 = 0.03$).

For instructor behaviors, there were only significant main effects of Activity Level and Discipline (see Tables 3 and 4). There was a significant and substantial main effect of Activity Level for Total Instructor Score ($\eta^2 = 0.20$) and for each of the three particular instructor behaviors: Positiveness ($\eta^2 = 0.13$), Personalizing ($\eta^2 = 0.16$), and Probing for Elaboration ($\eta^2 = 0.09$), with Active students reporting higher scores for their instructor than did Less Active students. There was a significant main effect of Discipline on the instructor behaviors of Probing for Elaboration ($\eta^2 = 0.03$) and Positiveness ($\eta^2 = 0.01$), with the two effects being in opposite directions. Instructors of arts/social science courses were perceived by their students to probe more for elaboration, but to be somewhat less positive in their responding than instructors in science courses who were perceived to probe less, but to be more positive.

### *Students' Overall Impression of Their Instructor*

For the four-way ANCOVA on Overall Impression, the covariates of Class Size (inversely related) and Proportion of Females were significant ($\eta^2$s = 0.03, 0.01). There was a main effect of Activity Level ($\eta^2 =$ 0.03), with Active students having a more positive overall view of their instructor than did Less Active students. There was a significant Student Gender by Instructor Gender interaction effect ($\eta^2 = 0.01$), with female students with male instructors reporting a lower Overall Impression of their instructor than did female students with female instructors or male students with either male or female instructors.

### *Additional Analyses: Age Effects*

To examine for possible effects of student age, chi square analyses and ANCOVAs were conducted. Following the procedures employed in previous research (Howard & Henney, 1998; Howard et al., 1996), students were categorized as either younger than 25 years of age (81%) or 25 and older (19%). The 2 x 2 chi square analysis for Activity Level by Age was significant, with more older students in the Active group than would be expected by chance and more younger students in the Less Active group. This effect was found at the overall sample level (Active: 56%, 32%; Less Active: 44%, 68%), $p < 0.001$, and separately for females (Active: 54%, 27%; Less Active: 46%, 73%), $p < 0.001$, and males (Active: 60%, 37%; Less Active: 40%, 63%), $p < 0.01$. The Student Gender by Age chi square analysis, however, revealed no statistically significant difference in the distribution of student gender in these two age groups.

Two-way ANCOVAs for Age and Student Gender were conducted on the student and instructor variables, with Class Size and Proportion of Females as covariates. The results indicated a general pattern of younger female students reporting lower scores than the other three groups of students and older students reporting higher scores than younger students on a number of student and instructor variables. Significant interaction effects were found for the student behavior of Length of Interaction, $F(1, 505) = 6.65, p < 0.01, \eta^2 = 0.01$, and for the instructor behavior of Personalizing, $F(1, 505) = 5.54, p = 0.02, \eta^2 = 0.01$, with younger female students having lower scores (*M*s = 1.42, 2.37) than the other three groups (*M*s range from: 1.70 to 1.82, 2.63 to 2.82). Significant main effects were obtained for Total Student Response, $F(1, 505) = 6.80, p < 0.01, \eta^2 = 0.01$, Interrupting, $F(1, 505) = 8.49, p < 0.005, \eta^2 = 0.02$, and for the instructor behavior of Probing for Elaboration, $F(1, 505) = 6.14, p = 0.01, \eta^2 = 0.01$, with older students reporting higher scores than younger students.

## *Discussion*

This study explored student perceptions of certain features of the academic environment. In particular, the influence of various contextual aspects of the university classroom (i.e., class size and gender balance, discipline, instructor gender) on student perceptions of their own participation and of their instructor were examined, as well as the influence of three individual factors: student gender, student self-perceived general activity level, and student age.

The most consistent findings in this study relate to the activity variable: students' ratings of their general level of classroom activity in a particular university course. In the ANCOVA analyses conducted on the nine dependent measures, activity was a statistically significant effect in every instance. Students categorized as active class participants perceived themselves to raise their hands more frequently, interrupt more frequently, and intervene for longer periods of time as compared to those categorized as less active. These findings provide some evidence of concurrent validity with respect to the activity measure. The significant interaction results reveal a differential relationship between the perceived activity measure and the other variables. To illustrate, students who perceived themselves to be less active did not differ in their specific behavior patterns as a function of gender or discipline, whereas the male active students interrupted more, and those categorized as active who were in Arts/Social Science disciplines reported long and/or more frequent interactions with instructors.

The more intriguing finding is that active students also perceived their instructors differently from their less active counterparts. Active participators regarded their professors as more positive, as more personalizing, as stimulating more discussion, and they had a more positive impression of their professors overall than did students who perceived themselves as less active. There was some variability in the magnitude of effect, with a smaller effect for students' overall impression (0.03) and larger effects for specific professor behaviors (0.20 to 0.09). Smith (1992) at the university level and Sadker and Sadker (1994) at the elementary and high-school level have also found that participating students hold a more favorable view of their classroom experience. Whether this positive orientation derives from or is in some sense created by active participation or whether both the favorable views of professors and the frequency of participation stem from a third variable, such as energy level, age, or degree of motivation, requires further investigation. However, the implication is clear that creating a classroom environment that generates higher levels of student participation is likely to be associated with more positive perceptions of the professor's behavior. The implications of these findings for student teaching evaluations are obvious. Interestingly enough, the variable of student levels of classroom participation has not been investigated in this context (see reviews by d'Appollonia & Abrami, 1997; Greenwald, 1997; Marsh & Roche, 1997), although Marsh and Roche specifically note the need to relate student teaching evaluations to actual classroom processes, including presumably students' activity level. Future research might profitably explore this relationship.

There is evidence from our sample of over 500 students from 18 university classes that the university classroom has the organizational feature of consolidation of responsibility for classroom activity among only a portion of the students. Sixty-four percent of the students (327/510) reported that they never, rarely, or only occasionally asked or responded to a question in class. These students, who were categorized as less active, perceived their own and their instructor's behavior as remarkably similar across an array of contextual and individual factors—discipline, instructor gender, and student gender. Although 36% of the students (183/510) had a score of 5 or higher and were classified as active, only 6% of the females and 9% of the males had a score of 8 or higher, which suggests that fewer than 10% of students consider themselves to be very active. These findings are consistent with the proportion of "talkers" reported by other researchers (Howard & Henney, 1998; Howard et al., 1996; Karp & Yoels, 1976). Furthermore, among the active students there was a significantly greater percentage of males than females. This result is consistent with the frequently reported finding of greater male participation and is also congruent with expectations derived from the chilly climate construct.

In terms of student gender effects, the adjusted means reveal that male students rated their own participation as significantly higher than did female students from the same classes. Males reported significantly higher levels of participation overall, significantly higher levels of interrupting, and significantly more and longer interactions with their instructor than did females. It must remembered, however, that we assessed self-perceptions rather than the actual incidence of these behaviors. Nevertheless, the fact that these effects are consistent with some prior studies that have reported that males talk more and interrupt more than do females (e.g., Haas, 1979; Stewart, Cooper, & Friedley, 1986) suggests that these perceptions may be veridical. Further, the failure to find student gender differences in perceptions of instructors' behaviors supports a conclusion that these significant results are not simply a function of gender differences in questionnaire responding.

Two of these student gender effects (overall participation and frequency of interrupting) were involved in a significant interaction with activity level. The interaction reveals that the gender differential is restricted to the students who self-identified as active. No gender differences were observed among students categorized as less active. A further complexity is introduced with examination of the age variable. Consistent with the findings reported by Howard et al. (1996) and Howard and Henney (1998), older students reported significantly higher levels of perceived participation than younger students on these same two measures, and there are significantly more older students in the group defined as active. Thus, the students who perceive themselves to be most interactive are older males. To further our understanding of the university experience, females and males should not be considered as two separate homogeneous groups: Within-gender factors that would be expected to affect students' experience of the university classroom need to be examined.

Another central finding in this study has to do with class size. Contrary to results in other studies (e.g., Crawford & MacLeod, 1990), we did not find that student perceptions of their own participation were influenced by class size. Class size had significant but low correlations with three of the four student measures, however as a covariate, class size did not predict a significant amount of unique variance. Although actual participatory behavior may be affected by class size (Canada & Pringle, 1995), clearly perceptions of participation are not, at least under the range of class sizes (16 to 50) studied here. In contrast, students in smaller classes perceived their professors more favorably, on all five measures examined, than did students in larger classes. This association of perceptions of professors with class size has some relevance to the interpretation of student evaluations of courses. We would expect students to evaluate smaller classes more positively, and this is indeed the finding reported in the literature (Marsh & Roche, 1997).

Somewhat comparable results were observed with the other covariate, gender balance. Here again, although Canada and Pringle (1995) report a negative effect on women's participation of increasing the number of males in the class, this variable had no impact on student perceptions of their own behavior, but was a significant covariate for student perceptions of instructor behaviors. In general, the higher the proportion of women in the class, the more positively the instructor was viewed, except for probing, on which the instructor was perceived to engage in less probing of students' responses. This perceived paucity of instructor probes is consistent with the chilly climate claim that instructors are less likely to seek explanations from female students, however, the positive relation with instructor Positiveness and Personalizing is contrary to expectations based on the chilly climate hypothesis.

Discipline, as a contextual factor, did not yield a large number of significant effects. There were, however, a number of significant main effects when the covariates were not entered in the analyses, indicating that there was variance explained in the measures, and this variance was shared between the covariates of class size and gender balance and the discipline variable. These differing results emphasize the importance of assessing a number of contextual factors (Cornelius et al., 1990). The significant discipline effects that were observed in general favored the arts/social science courses. For example in the case of active students, their total participation scores were significantly higher and the length of their interactions longer in arts/social science classes than in science classes. Professors in arts/social science courses were perceived to probe for or seek elaboration more frequently than were science professors. These findings suggest that science classes may be more didactic in structure than classes in other discipline areas, or students in these classes may be more reluctant to participate for other reasons.

Although we found no main effect of instructor gender on student perceptions of their own or their instructor's behavior, instructor gender did appear in two significant interactions: one with student gender and one with discipline. Consistent with the chilly climate model, female students with male instructors reported a significantly less favorable overall impression of their instructors than did females with female professors or males with either male or female professors. These latter three groups of students had on average very similar impressions of their instructor (range 3.9 to 4.1). These effects occurred even though in our sample it was these female students with male instructors who were in smaller classes on average than were the other three groups of students. These results suggest that it is predominantly female students in classes with male professors who may be finding the classroom environment less positive as opposed to female students in general. However, at the level of particular instructor behaviors, the interaction effect was not significant, indicating that it is at the overall impression level that female students with male instructors are perceiving less support and encouragement from their male instructors. These results indicate that it is important not only to examine various specific professor behaviors, but also to examine students' overall impression of their professor in investigations of classroom climate.

Commensurate findings have been reported by a number of other researchers. Field and Caldwell (1979), for example, found that females with male supervisors reported less satisfaction with their supervision than did female students with female supervisors. Worthington and Stern (1985) demonstrated that both women and men with same-gender supervisors perceived their relationship with their supervisors to be closer and attributed greater influence to their supervisors than did women and men with supervisors of the opposite gender. Generalizing from this earlier work, we might expect that women students would perceive their male professors less positively than their female professors. Seagram, Gould, and Pyke (1998) found that male doctoral students were more satisfied with the quality of supervision they received than were female doctoral students. Because most of the individuals in their sample were supervised by male professors, this finding is in accord with the result in the present study.

The fact that student perceptions of their own participation were not influenced by the gender of professors is contrary to what would be predicted from the chilly climate model. However, as Janz and Pyke (2000) have argued, there is variability in students' sensitivity to the micro-inequities and systemic discrimination characteristic of a chilly climate. Women, graduate students, feminists, minority students, and students who have taken courses in women's studies appear to be more aware of these factors than other students. The sample in the present study, although including women, was composed entirely of ,graduates and the other categories of 'sensitized' students may have been relatively underrepresented. Hence in the aggregate, the students may have been quite unaware of the impact of instructor gender on their perceptions of their own classroom participation.

In sum, the results of this study provide only partial support for the chilly climate model. The three gender effects obtained favored males;

furthermore, among the active students, the active male students perceived themselves as participating more and interrupting more than did the active female students, whereas among the 64% of the students who were less active, males and females did not differ. Older students perceived themselves as participating more and were disproportionately represented in the active group. At the level of students' overall impression of their instructor, female students with male instructors reported less favorable impressions of their instructor than did other students. This finding partially parallels the student gender/teacher gender interaction found by Feldman (1993). Feldman notes that "students tend to rate same-gendered teachers a little higher than opposite-gendered teachers" (p. 151), and indeed this result was replicated in our study. The results also underscore the relevance of contextual factors, particularly with respect to perceptions of instructors. Class size, the proportion of women in the class, and to a lesser extent the discipline area all contribute to perceptions about specific professor behaviors. The other major finding is the importance of students' self-perceptions of their general level of activity in the university classroom, in particular, the positive relation between students' perceived activity level and their ratings of professor behaviors. Students who regarded themselves as active in class also had more positive overall impressions of their professors. These findings have implications in terms of students' evaluation of instructors. In conclusion, the importance of examining multiple contextual factors in our attempt to understand more accurately the university classroom experience is stressed. Given the robustness of our results for the individual factor of activity level, we suggest that in future research females and males should not be considered as two separate homogeneous groups, but rather that important within-gender differences be examined.

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Carney Strange

# “On the Road to Cambridge”

## A Case Study of Faculty and Student Affairs in Collaboration

### *Introduction and Problem Statement*

Dating back to the founding of Merton College in 1264, by the Bishop of Rochester at Oxford University, the residential college has held a time-honored position in the annals of Western higher education. However, the history of American higher education illustrates that the kind of collaboration between faculty and other college constituents required of such programs has endured an “on-again, off-again” relationship since the mid-nineteenth century. Indeed, at Harvard University, the residential college idea was fiercely debated and subsequently defeated in 1906 (Duke, 1996). While once those who taught and those who administered in the academy were one and the same, and where students learned and where they lived were indistinguishable, perhaps the legacy of American higher education in the 20th century has been an institution somewhat divided in both purpose and personnel.

For good or ill the emergence of the modern university has seriously jeopardized whole learning in students’ lives, as some scholars have observed (Boyer, 1987), and contemporary higher education now serves very different ends than residential colleges once did. Such fragmentation has not gone unnoticed, though, as consumers and reform groups have called for the restoration of accessibility, personalization, wholeness, and human scale design in the academy (American Association for Higher Education, American College Personnel Association [ACPA], & National Association of Student Personnel Administrators [NASPA],

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1998; Boyer Commission on Educating Undergraduates in the Research University, 1998; Strange & Banning, 2001). Many institutions have responded in recent years by revisiting this age-old form of pedagogy—the "living-learning community"—in hopes of attracting and retaining students in an increasingly competitive environment. In the meantime, however, faculty and other campus constituents may have all but forgotten how to collaborate on common educational goals and programs. As Matthews (1997) concluded in her analysis of contemporary campus culture, the "world of academe [has become] strongly territorial, but not very social. Its three tribes—those who learn, those who profess, and those who arrange—carry a great deal of baggage, visible and invisible. All are jealous of traditional boundaries" (p. 36).

With regard to the role of student affairs, in particular, "those who arrange" in this landscape, Love, Kuh, MacKay, and Hardy (1993) have suggested that the "unsatisfactory quality and frequency of [student affairs'] relations with faculty on many campuses are due to fundamental differences in the way [they] view [each other]" (p. 53). On all too many campuses today, that relationship is characterized by infrequent contact, a lack of knowledge and interest on the part of each about the purposes and functions of the other, and frustration over what appears to be skewed priorities in the distribution of institutional resources. Although these two groups work at the same institutions with the same students, they sometimes act as if they were in different worlds. What ensues when they *do* respond to an invitation to come out of their respective worlds and to collaborate on a common educational program? In Matthews' (1997) characterization, how do these two tribes—those who profess and those who arrange—proceed when committed to a common educational goal? Such questions grounded the present work, in that this case study sought to understand the dynamics of collaboration observed over a period of fifteen months, at one Midwestern university, as faculty and student affairs staff together attempted to create a whole learning experience for students in the name of "Cambridge Learning Center," a living-learning, residential college program.

## *Method*

This study employed the methodological assumptions and practices of constructivist inquiry (Guba & Lincoln, 1989; Lincoln & Guba, 1985) to capture the multiple and socially constructed realities of case participants. Such constructions are "devised by individuals as they attempt to make sense of their experiences, which, it should be recalled, are always *interactive* in nature" (p. 86), and the intent of the inquiry process is to solicit as numerous and as varied constructions as possible. Also significant to this process, being hermeneutic and dialectic, are the inherent influences of the researchers' values and beliefs in shaping the study's means and ends. Findings are generated and presented in the form of thematic viewpoints coalescing around the phenomenon of interest.

### *Participants*

Participants in this study included six key informants: two campus administrators, two full-time faculty, and two student affairs staff members. In addition, another dozen individuals who contributed in supportive but nonetheless important ways to the program were also interviewed. All were involved directly or indirectly in either the initiation or implementation of "Cambridge Learning Community" (CLC) at "Regional State University" (RSU) over a fifteen-month period between 1996 and 1998.

First is "Dr. John Backhouse" (a pseudonym), a provost recently hired to assist the first-time president of RSU in creating a "premier learning community in the State for undergraduate education, and one of the best in the nation." Backhouse held a PhD in history from a prestigious research university. Second is "Dr. Phoebe Reagan," dean and long-time, institutional activist, who has held various administrative posts at RSU since 1974 (where she also completed her doctorate). She is skilled at forging lasting alliances with faculty, upper-level administrators, and community leaders, and proved most capable of putting together a grassroots campaign for the residential learning community. Third is "Professor Silver" of the English department, a self-described academic "stray dog" who did not appear to fit into the larger faculty culture. For the previous twenty-six years, he had worked tirelessly to innovate the curriculum at RSU, despite criticism from his peers. Silver believed that the notion of the whole person has been perverted in the academy, in that the intellect—creating a narrow and anemic brand of scholarship—is overemphasized at the expense of the body, the imagination, and the emotions. He is committed to making whole again the fragmented lives of faculty and students through programs such as CLC. Fourth is "Dr. Tom Hunt," associate professor of chemistry and one of the institution's most accomplished younger faculty members. He held a PhD in chemistry from a major research university and served postdoctoral fellowships at two major research institutions. Hunt was honored with RSU's Master Teacher of the Year Award and was listed among "Who's Who in Science and Engineering." He perceived himself to be a "misfit in chemistry" and was happy to honor a request to join the CLC faculty and staff, looking forward to collaborating with like-minded peers on an experiment of a different nature, one he hoped would lead to an improved system of higher education. Fifth is "Sandy Potter," dean of Freshman Opportunity Programs, with a bachelor's degree in psychology and a master's in college student personnel. Employed in housing and residence life at RSU since 1988, Potter has been promoted for exceptional skills in identifying manageable steps from obscure concepts, executing administrative tasks, and completing detail work. She was well liked by her colleagues and superiors, and was the recipient of several RSU administrative leadership awards. Sixth is "Jessica London," residence director and newly hired assistant director of housing, with recent bachelor's and master's degrees in English from a public liberal arts institution emphasizing a strong tradition of student leadership. She also completed a second master's in college student personnel. London was an experienced teacher of undergraduate rhetoric and composition, and a self-described practical, "task-oriented," and academically minded administrator within the field of student affairs.

### *Data Collection and Analysis*

Two phases of observations ensued during this case study: (a) a Planning Phase, distinguished by key events that occurred between December 1996, when Provost Backhouse convened a committee of faculty and student affairs staff to plan a residential learning community, and August 1997, when CLC held its first community event with students; and (b) an Implementation Phase that commenced with the first CLC meeting and continued to the last point of data collection in April 1998.

Two individuals served as data collectors and analysts for this study: (a) an experienced educator and student affairs administrator, with a master's in English and completed doctoral coursework in higher education administration; and (b) a veteran educator with a doctorate in higher education and student affairs, 22 years' of faculty experience, including eight years teaching qualitative research methods. While the first individual was the primary data collector, the second individual served as research debriefer, monitoring, shaping, and contributing to each phase of data collection and analysis.

Multiple, open-ended, and focused interviews with each of the six key informants constituted the primary data source. Participants' words, in response to a topical interview protocol eliciting their experiences and constructions of the planning and implementation of CLC, were recorded and transcribed. Also instrumental were observations of meetings, training sessions and events, written documents in the form of email communications, planning documents, concept papers, meeting minutes, marketing materials, and cultural artifacts, such as assumptions, values, and beliefs. Data generated by these techniques were unitized and categorized within an emergent framework of relevant themes.

### *Trustworthiness and Authenticity of Data*

In this study, credibility was established through (a) prolonged engagement in the field (15 months), (b) triangulation of multiple data sources, (c) member-checks, and (d) peer debriefing. Dependability and confirmability of data were enhanced through establishment of a meticulous audit trail comprised of interview tapes, field notes, verbatim transcripts, debriefing notes and transcripts, personal notes and journal entries of the researchers, and written documents collected from the informants. Transferability was facilitated by thorough, written descriptions of participants' constructions of core themes as well as a thick description of aggregated constructions illuminating working observations and illustrations of key findings. Last, authenticity of data was assured through the fair and open solicitation of participant constructions and testimonies concerning their increased understanding of the processes and issues of collaboration between academic and student affairs.

### *Research Questions*

Data were collected to address a protocol of exemplar questions concerning the intercultural dynamics of these academic and student affairs collaborators: How was the collaborative process initiated? What motivated members to become involved with this project? What roles were assumed by the various collaborators in this process? How did each constituent group perceive members of the other? How were points of coherence and contention handled? What were the rewards and costs of involvement for collaborators? What were the challenges and barriers to collaboration? In essence, this study sought to capture and understand the values, roles, and relationships that emerged as these second cousins of the academy assumed their respective places at the reunion table.

## *Findings*

These data are presented and discussed in reference to twelve core observations or impressions illuminating the processes of collaboration between faculty members and student affairs staff involved in the creation of this residential learning community. Six observations are relevant to the planning phase of the project, when basic decisions were made about program structures and parameters prior to its commencement, and six are particular to the implementation phase, when the residential learning community was opened to students and operated jointly by faculty and student affairs staff.

### *Planning Phase*

During the planning phase, six observations were noteworthy: (a) campus collaboration began only following a specific charge from senior level administrators who had experiential and professional understanding of both academic and student affairs; (b) collaboration required the introduction and re-acquaintance of campus faculty and student affairs cultures; (c) key collaborators espoused values grounded in their respective but different professional cultures; (d) expectations held by faculty differed qualitatively from those held by student affairs staff; (e) roles assumed by faculty and student affairs staff, respectively, were clearly differentiated; and (f) faculty and student affairs collaborators developed noteworthy, but incomplete, understandings of each others' cultures.

The history of academic and student affairs at RSU is similar to other institutions, in that each has carved out its respective organizational enclave wherein planned and budgeted responsibilities and programs are carried out mostly independently of each other. It was no surprise then to observe that collaborative efforts required the vision, force, and instigation of key institutional leaders to overcome an inertia of tradition and culture. The characteristics of the two initial instigators, Provost Backhouse and Dean Reagan, are of significance in that respect. Both seemed to share a broad, border-crossing vision and experience with higher education. Self-described as "residing in the [higher education] community at the interstices of the various pieces of it" (June 13, 1998, ll. 185–186), Backhouse reflected on how his earlier experiences developing his administrative portfolio at previous institutions had significantly shaped his broader view of a university's potential.

> I learned about residence halls, I learned a lot about advising. I learned a great deal about all the things that students deal with, that are not academic, per se, but that have an impact on the quality of their academic and education experience.

Thus, his calling together a small group of faculty and student affairs administrators, one day in December 1996, and charging them with the task of creating a residential college was much in keeping with his assumptions about how such a program would work.

> Experience taught me that if you have an advisory board . . . a planning committee, or whatever you call it, that is composed of people who are only approaching this from student affairs, or only approaching this from the academic side, you will fail.

Backhouse's early inclusion of Dean Reagan to coordinate the proceedings also sent an immediate signal that this was to be a university effort, not an academic or student affairs initiative alone. Reagan was well known on campus to faculty and student affairs staff alike. It is highly doubtful that such a meeting or proceedings would have taken place without the direct intervention of these two innovative proponents.

As the Cambridge organizational timetable unfolded, in meeting after meeting, it became clear that fundamental and untold differences necessitated the reintroduction of collaborators who brought varying assumptions and values concerning what this project was to be and how it was to proceed. One of the earliest manifestations of this divide came under the guise of naming the project, revealing a continuum of value orientations ranging from elitism, on the one end, to egalitarianism on the other. While the faculty had hoped for the distinction of being a "college," the student affairs staff chafed at the exclusive tone to such a designation. Professor Silver spoke for the more selective sentiment observed among faculty.

> [Our name] is a symbol of what we are. . . . It's also important because it puts us into a tradition . . . an Oxbridge tradition and the tradition that is alive and well in this country and . . . re-generating today with the thriving growth of these residential programs . . . so visibility and credibility depends on the symbolism of that name [i.e., "college"]

Speaking from the other end, Sandy Potter betrayed a more egalitarian motive for a program that embraces the needs of a wider audience. In her view, perhaps inherent to the student affairs ethos, enrichment strategies such as those that were proposed by faculty could be tolerated only to a point.

> Cambridge students have enough already. I think the faculty would say we can't ever do too much for these students, that we need to do everything we can to create an academic environment, where students are getting the type of support that they need. And I don't disagree with that, but I just think we need to share the wealth.

Differences of values also emerged in committee members' varying expectations about the shape and form of this program. Again, Potter contrasted what she perceived to be a program that began to list heavily toward the selective academic model, at the expense of other important learning experiences.

> Where I think we differ is "what is this experience?" Is that experience having a rigorous academic experience, and sometimes that seems like that's the entire focus, or are we really interested in developing the whole person. And I think that that's being left out.

One committee member, who discontinued involvement in the program prior to its implementation, went so far as to dismiss faculty expectations as simply unrealistic and out of touch with the current generation.

> [The Cambridge faculty thought] students would want to sit around and read poetry that they've written and I don't think they [students] are going to want to do that. I think they're [faculty] being . . . idealistic. I think a lot of them . . . went to college in the '60s and I don't think it's going to go over . . . to have . . . poetry readings and people snapping fingers and whatever, so. . . . I'm not real interested in that and I don't think students will be either.

Realistic or not, and albeit limited in its scope, Professor Silver's enthusiasm for the curricular repair promised in this planned learning experience was shared by most faculty committee members.

> So when we put the Humpty Dumpty back together again, which is what a small learning community can do . . . to put the disciplines back together . . . so that we work together . . . faculty from seven different disciplines . . . it puts the relationship between the student and the teacher back together. It puts the connection between the community and the world back into the picture.

The divergence of values and expectations during this phase also paralleled clearly differentiated roles assumed respectively by faculty and student affairs committee members. In brief, faculty collaborators often projected visions of academic learning, while student affairs collaborators created detailed maps of how to get there. Sandy Potter all but confirmed this distinction as she thought about her essential role in the project.

> I think the overall vision . . . I guess I think when it comes to the student affairs side, we can help with the logistics. [Faculty] don't know those things, and . . . I don't expect Professor Silver to be a housing expert.

She continued in her assessment, acknowledging that faculty may have a very limited understanding of the interconnections and institutional contingencies that student affairs staff must consider regularly.

> And I don't think [they thought about] . . . how this program fits into the greater scheme of housing. I think that, in some ways, I felt like [faculty think] this is kind of [their] building and . . . and we'll run things according to whatever the plan is. Well, you know, it's still a residence hall, and it's also part of a quad. . . that you can't differ too much when you've got, you know, a lot of eyes right there watching what's going on. So, I think [they're] missing a big part of student affairs. . . .

By her own admission, Potter, perhaps out of experience and personal preference, assumed the necessary role of taskmaster, if for no other reason than to avoid long and fruitless meetings where much is aspired to but little is achieved.

> I have felt at times that . . . I've had to assume a role . . . or try to keep people on task. . . . and maybe help them outline the task. I don't think anyone is not following through with their task, but just . . . I've at times detected that there's individuals who . . . just really don't know what the next task is.

Although not immediately recognized, the value of student affairs logistical skills became clear to faculty in the course of this phase, as reflected in Professor Silver's appreciative comments.

> "Can I join ROTC? Can I go Greek? Do I have to live in the dorms?" Those are the nitty-gritty kinds of questions that we need to address. They [student affairs professionals] have helped me do that. They have helped me recruit students. In a very real abstract way, the best I can say is that [student affairs] will be the voice of the students to the faculty.

In spite of these intermittent revelations, faculty and student affairs committee members seemed to generate noteworthy, but incomplete, understandings of each others' cultures. In the voice of Sandy Potter, student affairs participants often constructed images of faculty as ethereal and far removed from the day-to-day experiences of students in residence.

> [Faculty are] missing the, the ground level in this, . . . missing the housing part of this . . . the part of where students want to know that they have a clean, safe room that they can live in . . . not . . . whether a course is going to fit into their schedule, but who is this person I am living with. You know, that's one of the first things that they worry about. And, I don't think that [the faculty have] really thought about that.

On the other hand, faculty were thought to have relegated student affairs staff to the grit and grind of the project, devoid of educational vision or desire to participate in higher academic deliberations. Jessica London, the hall director for CLC, later reflected on her desire to be more integrated into these aspects of the project, as well as her regret for the seemingly limited view the faculty maintained of her involvement, not as an educator but only as a special administrator.

> What I really do, I think that probably, you know, [Cambridge faculty] don't...see every aspect of it, but they're probably right, it's just a manager position. You're . . . just holding down the fort. You're keeping the place from burning. . . . You're trying to enforce quiet hours so that people can study and take exams and sleep, and [faculty] see that, that's what you're there for. What I would like for them to know that I do, and what I would like to have more time to do, is to figure out ways to actively involve my staff with the program, so that they're more connected to it, to encourage those discussions, to work more on the philosophical side.

In sum, and perhaps most striking, is the distinctive layering of values, expectations, and roles that occurred during this phase, in spite of everyone's best intentions and efforts. Although the "visioning" and "tasking streams" were, at times, complementary, like fresh tributaries meeting coastal brine, they continued to cloud and distort some aspects of the whole learning experience espoused by these collaborators from the start. The proof would lie eventually in the deviled details of program implementation.

### *Implementation Phase*

During the implementation phase of the CLC project, six additional impressions emerged: (a) Student affairs staff became the missing link between faculty and students; (b) Faculty members became apprentices of student affairs staff, learning about students in ways they had not known previously; (c) Continued collaboration suffered from the limited proximity and access of collaborators; (d) On-going collaboration proved time consuming and exhausting to all; (e) Academic affairs and student affairs remained somewhat separated by the larger matrix of university history and bureaucracy, yielding only reluctantly to new combinations; and (f) Collaborators continued to function out of differing value sets related to their respective professional cultures.

If faculty seemed to have held the upper hand in driving the planning phase of Cambridge Learning Center, the tables were clearly turned as plans evolved into programs and practices. Faculty and student affairs staff continued to function from their respective value sets, but the essential question became one of project vitality. "If we build [a residential learning center] will [students] come?" What was needed at this stage was someone who could pull it all together, and most willing to do this were the participants from student affairs. Jessica London reflected on this new and critical contribution she was making to the success of CLC.

> I'm sort of holding things together. I'm the link . . .that's helping the faculty adjust to living in a residence hall and the certain things that are unique to a residence hall. And then helping the people that are used to being in a residence hall, custodial, residence hall clerks, the RAs, the junior tutors, everybody, helping them adjust to having faculty here, who have put additional demands on them. I'm trying to balance those. So rather than a leader, it's more like, sort of, a glue and a translator of needs.

The essential role of London in linking the various constituents of CLC was confirmed numerous times by both Professors Silver and Hunt as they each reflected on new insights and understandings. Silver first acknowledged the benefit of this collaboration to yield a more complete picture of students' lives.

> Jessica [London] and I are having coffee together and she tells me about a liquor bout . . . drinking. And I just had lunch with four faculty and I shared that with them. And we name names. Two of the students were in three of the faculty members' classes, and so they [faculty] get a wrinkle on a student.

Hunt concurred, having observed through hard data and a new, albeit less flattering, view of the students he was trying to reach in his own "experiment" to see how students learn best.

> I've run into something I didn't totally expect. I think I probably sort of knew it intuitively and subconsciously, but I wasn't quite prepared to realize that while students may even vaguely recognize the value of some of these [learning opportunities], they aren't necessarily prepared to put forth a great deal of effort.

London later confirmed the eye-opening experience she observed among the learning center faculty as they came to terms with student complexities.

> I think that faculty are much more aware [now] of the severity of the kind of baggage that students come to school with. They also see them as very . . . young, they're very pragmatic in the sense that . . . you know, "What do I need to know for the test?" That's the only aspect that they knew . . . before. I think now it's much more, "What do I have to do to fulfill my Housing requirement?" They see that pervades their entire life. "What do I have to do to prepare for this test?" Faculty never before saw the bad study habits that . . . our students practice, and I think, you know, if the faculty are in their office late, grading or something, and they, you know...they'll walk around and they'll know that those students are starting papers at midnight or something, you know? While they may have sensed that before, I think that that's actual hard knowledge now.

While the CLC faculty and student affairs staff each took turns guiding the progress of this project, barriers, both physical and cultural, continued to challenge what was intended to be a whole, seamless effort. Location of faculty offices during the implementation phase, away from some of the original student affairs collaborators in the planning phase, limited their interaction and access. Physical distance meant fewer contacts other than those over the phone or through e-mail. Sandy Potter, a student affairs collaborator whose office was located in another building, bemoaned the distance that became apparent very early in this phase.

> [Collaboration] is not going on right now. I did. I mean, I did see it. I am also still willing to think that [collaboration] might happen. All of a sudden someone's going to go, "Oh my gosh! We don't know this stuff" and then they're [faculty] going to start turning back to the [student affairs] group.

Nevertheless, Potter understood some of this separation to be inadvertent, if not uninformed, and perhaps inevitable.

> I don't think it's intentional. I really don't think that . . . [they have] made a decision that . . . "We don't want Sandy Potter involved" . . . Because I just don't think that's . . . the way [Silver] operates. I don't think that anything has happened . . . that there is some point of contention between us . . . that we have not worked well together . . . I don't think that's it. I think it just goes back to . . . the wall that's between academic affairs and student affairs. And, . . . I think it's a genuine lack of knowledge on their part as to how student affairs could be helpful . . . in this endeavor, and . . . [I] think it's just going back to . . . the old way of thinking that you typically wouldn't include people outside of the academic realm, and I think that's unfortunate, because that's not the way this was designed. And...I'm not sure if people realize that.

In the face of these distances, physical and psychological, the challenge of collaboration often took its toll in exacting from participants excesses of time and energy. By the end of the first term, London admitted to the culling effects of project demands.

> It takes so much energy to include so many people, so [we tend] to just go with people that are right here, which is me and the faculty, and that's about it. There's definitely been a weaning away from some of the other people who were involved, but I think it's not because [the faculty] don't think they have anything further to contribute, it's just that getting people there has been impossible. Everyone's busy, you can only fight so many battles, and I think that [collaboration is] the one [we] just kind of let fly.

She also decried the impossible and competing expectations of her hall director position and the opportunities to participate more closely in the workings of CLC faculty.

> I mean, it . . . it's just, there's not enough time to do the things that I think are really valuable to this position, that would make it a really collaborative position . . .You know, I mean, it's hard when you're up until three in the morning to be up and alert at a meeting at eight . . . so maybe I sometimes don't come across that well at a meeting at eight with faculty, because I was up until three with a student, you know?

Even if the CLC collaborators were able to control satisfactorily their immediate environment, the larger matrix of university history and bureaucracy pressed heavily at times on their efforts. London spoke about this matter with an ambiguous mix of hope and frustration.

> . . . the system's gotta' believe in what you're doing, and we've gotten mixed signals on that I think . . . We got a big chunk of money to begin with, but now we're being told that we can't get another line for another faculty person until we produce numbers of students enrolled. Well . . . how are we gonna' recruit students without being able to tell them what classes we're going to teach? Chicken, egg, chicken, egg, you know? Full circle, you know? So, perseverance, and that's something I . . . I waver on. . . . We are just one small seed . . . all I can hope is that we've planted the seed, we've laid the groundwork, and that there's strength in numbers.

The implications of this institutional web also impressed Silver as he struggled with policy articulation and practice.

> The issues that we've had the first three or four faculty meetings have been very much to do with collaboration between academic affairs and student affairs. For instance, when a student has to withdraw from one of the required courses, does the student have to withdraw from the community, the residence hall and the other Cambridge classes? This is a judicial infraction. The student drinks for the second time . . . he gets caught . . . is he forced out of the residence hall? Does the student stay in our class?

Last, if differences of values *espoused* characterized processes of planning in this project, it was often differences of values *enacted* that complicated implementation. Faculty and student affairs staff alike experienced noteworthy moments when values held seemed to conflict with values practiced, further confusing any cross-cultural exchanges during this phase. For example, Silver professed holistic approaches to learning and even lobbied for the creation of a unilateral policy that would address both student life and academic matters in a single document. However, when it came to enacting this value, Silver seemed to table this motion for the other time-honored values of academic freedom and rigor, as he explained to a well-respected CLC student that he could not justify giving her an "A" in his course, although she had earned this distinction in other ways, via service and leadership to her classmates. Upon first glance, Silver's policy seemed both reasonable and equitable; the student earned the grade that he merely reported to the Registrar's Office. Nevertheless, his decision to leave this student's grade unchanged seemed to conflict with what he espoused earlier. When this discrepancy was called to Silver's attention by the researcher in the member check process, he wrote: "I stand by my decision—I would award this student a CLC leadership award, but not an A. Let's not confuse the two" (Silver, Personal Communication, April 11, 1998).

Similarly, student affairs professionals in this effort also experienced difficulty enacting professed values. A case in point is Jessica London, the student affairs administrator who found it to be nearly impossible to complete all of the duties outlined in her newly-created job description. Accordingly, London envisioned herself becoming a holistic educator; not only would she teach a course in Cambridge, she would serve as the program's dean of student concerns. As much as she would like to have embodied the values set forth, for example, in the Student Learning Imperative (ACPA, 1994), London found that multiple roles in Cambridge could not be completed by one person, and that she would never be able to sever Cambridge's ties to the larger bureaucracy of Regional State University. While London valued the opportunity to direct a residential college program with a unique learning experience for students, one that would enable her to serve as both classroom instructor as well as principal judicial officer, she spent most of her time, instead, feeding the bureaucratic machinery of RSU.

In sum, the implementation phase was characterized by further bifurcation of mission and program maintenance. What was required of CLC faculty members and what was required of student affairs staff took divergent, though parallel, paths as plans evolved into programs. What appeared as seamless experience on paper seemed to revert at times, and all too easily, to well-worn institutional and professional lines, with academic work and faculty by day and students and student affairs work by night. Whether this collaborative effort was to collapse into a new package of old strategies or whether it was to succeed in restoring whole learning to RSU, remained in doubt at the time data collection had ceased. What was apparent, though, was that collaborators were committed to seeing it through while continuing to grapple with the forces of habit and culture. What was failing in the academy seemed clear; what would heal it was yet to come.

### *Discussion and Implications*

Although all project participants seemed compelled by a common humanistic calling (Stamatakos, 1981), the faculty and student affairs staff joined this RSU collaboration from respectively different, and well established, systems of socialization and rewards. To do anything different at this stage was not only unfamiliar, but it proved to be a significant challenge for each constituency. However, the observation that collaborators were bound by the norms and traditions of their respective fields, is consistent with what others have observed regarding the power of professional communities to both prod and confine members (Kuh & Whitt, 1988; Masland, 1986 ; Pascale & Athos, 1981; Schein, 1992; Trice & Beyer, 1984). Certainly, one of the strongest impressions that emerged in these data is the hegemony of professional and organizational cultures in the shaping of expectations and the defining of members' roles. Without question, these participants in CLC retained their fundamental professional values and brought divergent expectations to the process of collaboration without fully realizing the control these forces had on them.

To the culturally sensitive observer, it was easy to discern, at any given point during the collaborative process, who was a faculty member and who was a student affairs administrator, because they, in fact, spoke very different dialects of the same language. Even when common words appeared, meaning was often lost in delivery. Phrases, such as "good educational experience," invoked very different images for members of each culture. Although collaborators attempted to make seamless what had previously been disjointed, namely intellectual and social learning, their bonds to different but complementary professional cultures prevented them from achieving this goal outright. Rather, it might be said that the two collaborating cultures sewed themselves together with two strands of visible threads, each one being pulled from the spool of its respective professional community. To be sure, this dynamic was apparent from planning through implementation, calling forth the inclinations and talents of both sides. Faculty often served as "thinkers," while student affairs staff members acted as "doers," and although the function and practicality of student affairs was appreciated, it seemed that insights and ideas of faculty were more highly prized in the academic hierarchy, in effect, drawing from a power differential that inevitably privileged their views. Perhaps visionaries enjoy elevated status over task masters in the challenge of educational innovation.

Bowen and Shuster (1986) explained that espoused faculty values often include the pursuit and dissemination of knowledge, academic freedom, and collegiality. Conversely, Love et al. (1993), citing the work of a 1987 National Association of Student Personnel Administrators committee, suggested that most student affairs professionals believe that each person has worth and dignity; that out-of-class environments affect learning; and that a supportive and friendly community life helps students learn. While these values are espoused by members of the professoriate and student affairs, respectively, the present data suggest that these core assumptions may not be completely attainable. As observed here, the difficulty lies in the translation of espoused values to enacted values, and in this case actions spoke loudest. All of this is to suggest that, perhaps, when two cultures hold conflicting espoused values, they may reason or talk through the discrepancy, but when these same constituencies enact values, more tangible irreconcilable conflicts may arise, potentially jeopardizing the desired ends of the venture. Shades of this impending dynamic became apparent in the final observations of this study.

Considering the overall objective of the CLC project, that is, to bring together disparate campus cultures to achieve maximum synergy and educational benefit, the literature on corporate mergers offers some striking parallels. In that respect, the present data clearly reflect the dynamics of a collaborative merger, a concept familiar to many in the private sector. Collaborative mergers occur all the time in corporate America, as stockholders maneuver organizational boundaries to maximize profits.

Accordingly, although higher education may not have "stockholders" per se, the enterprise certainly possesses a body of stakeholders, including faculty, administrators, parents, alumni, legislators, and, of course, students themselves. According to Buono and Bowditch (1989), "a common misconception about cultural integration in a merger . . . is that there must be total assimilation of the different cultures" (p. 143). In reality, there are different degrees of cultural integration that can be achieved by merger partners. For example, "cultural pluralism" ensues when two autonomous units attempt to sustain separate sources of motivation and creativity for the benefit of both firms; "cultural blending" occurs when two equal organizations attempt to blend or assimilate the strengths of each unit into one source of creativity; "cultural takeover" is apparent when the acquiring firm attempts to dominate and replace the culture of the acquired firm; and "cultural resistance" reflects a general lack of understanding of each and the other culture, and the merger fails to achieve the operational synergy and strategic objectives that it needs to sustain itself. By and large, the level of integration achieved by participants in this study was mostly characterized by elements of cultural pluralism and, to a lesser extent, cultural resistance. To state the case more precisely, cultural pluralism best defines what was achieved by the collaborators, but cultural blending best describes what members had hoped for.

Several reasons seem to exist for this shortfall in organizational goals. In addition to the fundamental cultural differences discussed above, the value structures of the academy itself may have jeopardized such efforts from the start. After all, this was an academic program built upon the foundations of a learning community. Faculty seemed to have stepped down from their places of tenure and privilege to work in Cambridge, while student affairs seemed to have taken a step up by aligning themselves with academic leaders and ideas. In a matter of a few months, however, faculty had gained control of the newly formed firm (reflecting a stage of cultural takeover), if for no other reason than they outnumbered, by ten to one, the student affairs professionals who remained in Cambridge. Although faculty held greater shares of Cambridge stock, they attempted to learn about students in ways previously unknown, requiring them to listen to the stories of Jessica London and her staff of student affairs paraprofessionals (a frequent source of cultural resistance). At the end of the implementation phase, however, each of the Cambridge collaborators pondered the future of the rising program.

A number of implications imbedded in these data may serve as guideposts for future collaborative mergers between faculty and student affairs. Given the apparent and pervasive effects of professional culture, it would be wise for constituents to spend significant time understanding their own professional cultures, as well as that of any merger partner, prior to collaboration. Kuh and Robinson (1995) have argued that, "formal instruction in institutional culture is rare; rather through trial and error people discover what is valued, what works, and what does not" (p. 73). Certainly, the data in this study demonstrate the merits of such a claim. Without question, the CLC faculty-student affairs merger at Regional State University was mostly improvisational rather than guided by any explicit score. Although faculty members and student affairs professionals alike were passionate about creating an environment where students could learn, develop, and grow more holistically, they shared only an incomplete common conceptual template for defining and achieving this objective. As Kuh, Douglas, Lund, and Ramin-Gyurnek (1994) have concluded, it is important for partners to first discover the "models and the assumptions and values they represent . . . if [they] are to collaborate successfully to enhance student learning" (p. 69). To foster shared models, collaborators might consider the benefits of a culture audit (Whitt, 1993), with the help of a knowledgeable outside person to understand the artifacts, assumptions, and values of each and the other professional culture. Kuh and Robinson illustrated that "cultural research adds a measure of stability to an inherently fluid set of circumstances [during the merger] by giving people permission to acknowledge their concerns and exert some control over the situation, as contrasted with experiencing the merger as something being done to them" (pp. 87–88). A culture audit might function equally well for intra-institutional collaborative mergers, such as those between faculty and student affairs. Values clarification exercises, job sharing or shadowing, review of common readings (e.g., Young, 1997), and guided discussion of critical questions (e.g., What is an educated person?) might also serve to engender a consensus of resolution.

Finally, because professional cultures sustain themselves over time, it may be appropriate that a person "from without" intentionally disturb the conventional routines of each culture and oversee their progress toward an integrative goal. If collaborative partnerships are to be formed in American higher education, then an independent force might best create the initial momentum for collaborators to come to the planning table. It is interesting to note that positions with the exemplary titles, such as dean of undergraduate education, assistant provost for undergraduate education, and dean of student learning, are being created more recently at institutions of higher education to effect such cooperative initiatives. In such positions, one individual who is well aware of both cultures, yet affiliated with neither, has the responsibility to cross traditional boundaries and to ask questions about values held and enacted by the institution's constituents. The emergence of this reconceptualized, generalist role is a hopeful sign that a growing number of institutions are becoming more interested in establishing whole learning experiences for students. In conclusion, if American higher education is to succeed at reclaiming a holistic vision of learning, particularly at a time of shrinking resources and greater pressures, probing further into the dynamics of collaborative efforts such as those observed in this case will take on an even greater sense of urgency as postsecondary institutions attempt to evolve toward new purposes and structures.

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# Review Essay

## Affirmative Action, Diversity, and the Politics of Representation in Higher Education

*Affirmative Action and the University: Race, Ethnicity, and Gender in Higher Education Employment,*
by Kul B. Rai and John W. Critzer. Lincoln, NE:
University of Nebraska Press, 2000.
250p. $45.00. ISBN 0-8032-3934-3.

*Faculty of Color in Academe: Bittersweet Success,*
by Caroline Sotello Viernes Turner and Samuel L.
Myers, Jr. Boston, MA: Allyn and Bacon, 2000.
257p. $35.50. ISBN 0-205-27849-3.

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Colleges and universities appear to have become the primary sites for the struggle over affirmative action, as there are a number of recent decisions and pending lawsuits against some public universities, and politically conservative organizations which oppose affirmative action have focused their attention on these institutions (see Alger, 1999). As a result, there has been an increase in studies addressing its importance. Many scholars believe that providing empirical evidence of the compelling need for diversity is the only hope for saving affirmative action. As Alger explained, courts expect "articulated evidence of the educational benefits of diversity." The books reviewed in this essay are similarly concerned with providing empirical evidence of the

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importance of diversity. Turner and Myers direct their attentions to retention practices in *Faculty of Color in Academe: Bittersweet Success*, while Rai and Critzer in *Affirmative Action and the University: Race, Ethnicity, and Gender in Higher Education Employment* focus more specifically on the impact of affirmative action on all higher education hiring practices.

These two books significantly contribute not only to the scholarship on diversity but also to political projects concerned with social justice. Like other recent studies providing empirical evidence of the successes of affirmative action (see, e.g., Bowen and Bok, 1998), these books illustrate convincingly that diversity is important to the academy and to society at large. Yet, like other works that fail to question the ideological and discursive practices that create diversity in the first place, these books also might contribute to political projects that, without critical self-reflection, are counterproductive to social justice. In this essay, I summarize each book and review its strengths and limitations. Then I provide a more general critique of the political projects on which both books are premised.

## *Affirmative Action and the University: Race, Ethnicity, and Gender in Higher Education*

Drawing on Equal Employment Opportunity Commission (EEOC) and National Center for Education Statistics (NCES) data, Rai and Critzer used statistical analysis in *Affirmative Action and the University* to evaluate changes from the 1970s through the mid-1990s in the ethnic/racial and gender make-up of professional and non-professional positions in private and public institutions. The purpose of this study was to analyze the successes of minorities and women in obtaining positions in higher education and to determine if these groups made gains in proportion to their share of the state's population. Relying on the notion of a "representative bureaucracy," Rai and Critzer argued that public higher education, as an arm of state government, is more likely than private higher education to provide employment opportunities for minorities and women. A representative bureaucracy presumes that public entities would be more reflective of the population in which they reside, and so minorities and women will fare better in states with larger populations of their groups.

The authors did well enough in highlighting the key arguments associated with affirmative action in their introduction, although other recent works provide more extensive discussions of these debates (see, e.g., Cahn, 1993; Crosby & VanDeVeer, 2000). In Chapter 1, Rai and Critzer provided a brief history of affirmative action, highlighting its bases in federal antidiscrimination laws and key Supreme Court cases. This review, however, was not completely reliable, as they incorrectly cited a few cases and missed other key ones. This problem probably can be attributed to the fact that they relied only on secondary sources (and particularly newspaper articles). Although this was unfortunate, it did not detract tremendously from the value of the book, since the point of the study was not to highlight the law of affirmative action. Other works, however, provide more accurate discussions of the legal bases of affirmative action (see Chin, 1998).

In Chapter 2, Rai and Critzer explained the "representative bureaucracy," and they overviewed the historical governmental discrimination of Blacks, White women, Hispanics, Asians, and Native Americans (their labels). The use of the term "bureaucracy" with regard to colleges and universities seemed odd, especially given more convincing organizational theories of higher education (see Baldridge, 1971; Cohen & March, 1974). At any rate, their concern predominantly was with whether affirmative action was more successful in increasing "bureaucrats" in public as opposed to private higher education, a premise they tested with EEOC and NCES data in the subsequent chapters.

Chapters 3 through 6 reported on the representation rates of minorities and White women, and Chapter 7 reported on their doctorate attainment. Essentially, comparing the representations of these groups in the general and state populations with their representations in faculty, administrative, skilled, and unskilled positions in higher education, Rai and Critzer showed that Blacks, Hispanics, and Native Americans were underrepresented in faculty and administrative positions and were predominantly in non-elite jobs. Asians were over-represented in faculty positions but underrepresented in administrative jobs. White women, though over-represented in clerical/secretarial jobs, were making great strides in higher-status positions. Minorities and White women were more likely to be hired by public rather than private institutions, and they were best represented in states with higher populations of their groups. Women in all groups increased their representation in the higher-status positions, but still fared less well than men. All groups increased their attainment of doctorates, especially the women, but Native Americans had the fewest doctorates and Blacks had the lowest attainment rates.

Chapter 8 contained an interesting analysis of macrolevel political and socioeconomic factors which might influence the employment of minorities and White women in higher education. Rai and Critzer compared the success of affirmative action with states' (a) political ideology, (b) party affiliations, (c) minority representation rates, and (d) rates of wealth, industrialization, and urbanization. They found that the greatest impact on the successes of minority and White women was their representation rates in the state population. There was, however, substantial evidence that such representation was greater at public rather than at private institutions, a finding Rai and Critzer attributed to public institutions' bureaucratic efficiency at affirmative action.

The last chapter summarized the findings, which are that minorities made gains in higher education, but White males still predominated in the higher-status positions. White women were the greatest beneficiaries of affirmative action, and their successes kept Whites over-represented in faculty and administrative positions. Public institutions were more likely to hire White women and minorities, although this gap narrowed in the 1990s, a fact that can be attributed to the increasing successes of all women. Only demography seemed relevant in explaining the impact of affirmative action, suggesting that government policies were not as effective as commonly believed. Still, what successes there were could be attributed to affirmative action.

Rai and Critzer offered extensive quantitative evidence supporting their arguments about the successes and limitations of affirmative action, and they did so in a way that was understandable. They provided numerous tables that summarized their findings, and the narrative description of their findings was very good, matching the surprising readability of Bowen and Bok's (1998) study of affirmative action in college admissions. The most compelling aspect of this book, however, was the evidence illustrating that White women were the primary beneficiaries of affirmative action. This finding raises questions about the tendency of many to link affirmative action to race. It is clear that White women, not minorities, are replacing White males in faculty and administrative positions. Therefore, the rhetoric which continuously emphasizes the victimization of White males by "less qualified" minorities must be aggressively reappropriated with such contradictory data. The danger of doing so is that White women will pitted against racial minorities. Still, White women should be made aware that ending affirmative action will have serious consequences for them.

Nevertheless, while Rai and Critzer provided convincing evidence of the successes and limitations of affirmative action, their arguments are weakened by an essentialism that assumes that aggregate (and statistical) data of social groups tell *the*, or even *an*, important story of affirmative action. An analysis of within-group and individual (qualitative) differences among Hispanics, Asians, and Native Americans would likely tell different stories about which minority groups are doing well and which are not. Furthermore, the reliance on EEOC and NCES data, which do not report data on individual campuses, obscures differences among institutions (especially public ones), and those differences, as Rai and Critzer acknowledge, also might provide compelling information about affirmative action.

Finally, Rai and Critzer made a comment in Chapter 1 which raises questions about their intentions. They stated on page 16 that they had argued in an prior op-ed piece that upper- and middle-class minorities and White women should be excluded from affirmative action, and that it was possible to define affirmative action in terms of economic and social factors. If so, what would affirmative action mean in faculty employment, since the requirement of the Ph.D. (a requirement that they did not contest) certainly excludes a large number of "lower-class" individuals? Their comment shed doubt on their views, which appear to be supportive, though perhaps too weakly, of efforts to increase diversity in higher education.

## *Faculty of Color in Academe: Bittersweet Success*

Turner and Myers' *Faculty of Color in Academe: Bittersweet Success*, like Rai and Critzer's book, uses quantitative data, but by also providing qualitative data they give "life" to the numbers. This book was based on a 1993-95 study of African American, Asian Pacific American, American Indian, and Latino faculty (their labels) in eight states which were members of the Midwestern Higher Education Commission (MHEC). Their study used representation data provided by the EEOC, the 1990 Census Public Use Micro Sample, and the MHEC universities, as well as surveys, semi-structured individual interviews, focus group interviews, and reviews of exemplary recruitment and retention programs. Unlike Rai and Critzer, Turner and Myers were less concerned with the impact of affirmative action *per se* (although they vehemently supported it) than with the retention and development of faculty of color. The most important finding was the continued presence of racial/ethnic bias in higher education, but asserting that their study is one of "successes, not failures," they highlighted positive experiences (p. x).

Chapter 1 described the study in more detail and they defined their use of the term "underrepresentation" as the low percentage of minority faculty as compared with their group's percentage in general and state population (sorted by race and ethnicity, gender, age, and immigration status and citizenship). Turner and Myers concluded that the underrepresentation of African Americans, American Indians, Latinos/as cuts across these measures of representation, and that native-born Asian Pacific Americans in critical age periods were underrepresented. In Chapter 2, they provided a comprehensive review of the literature explaining this underrepresentation and offered key examples from that literature in the margins of the pages, which was useful as a quick reference. Turner and Myers also summarized minority concerns within and across the groups and provided an overview of affirmative action, highlighting its basis in antidiscrimination law and stressing the imperative need for it. As with Rai and Critzer's book, others provide more comprehensive overviews of affirmative action (see above).

In Chapter 3, Turner and Myers explained that Blacks, Hispanics, and American Indians were underrepresented in most faculty ranks in the Midwestern states, no matter which population subset was used, and Asian Americans were underrepresented in the middle-age group (34-43). They illustrated, like Rai and Critzer, that Whites were not being displaced by any minority group. When they accounted for national original (native-born versus foreign-born faculty), they found that "Asian Americans are *appropriately* represented—not over-represented—on faculties" (p. 76, emphasis in original). I'm not exactly sure what the word "appropriately" (and its emphasis) meant here, but its use was problematic as I discuss in the next section.

Turner and Myers provided data in Chapter 4 from interviews with 64 tenured minority faculty members (some of whom held administrative positions). The data was organized around the common themes among all the faculty members as well as the particular experiences of each group. They found, among other things, that the faculty members believed that (1) they had to work harder than Whites, (2) they were treated as if their ethnicity mattered more than their credentials, and (3) they received little support for, or validation of, their research. With regard to the particular groups, they found that (1) American Indians felt conflict between their identities as faculty and as Indians, (2) Asian Pacific Americans felt victimized by the "glass ceiling," erroneous perceptions of language barriers, and stereotypes about their passivity, (3) Latinos/as felt cultural isolation and overwork, and (4) African Americans felt simultaneously *hypervisible* for being the only ones in their departments (which made them responsible for "race" concerns) and *invisible* for not fitting others' view of the norm. Turner and Myers also highlighted the intersection of race and gender, finding that for minority women race concerns were magnified, and they felt role conflicts between their family responsibilities and careers.

In Chapter 5, Turner and Myers illustrated that the notion of the "revolving door" must be questioned. The MHEC faculty generally were not hired or retained, or did not depart, at lower rates than Whites, and at some institutions, they were hired and retained at equal or greater rates. Turner and Myers argued that the problem of underrepresentation is one of *under-hiring*, and in order to correct this problem, strong affirmative action is necessary. In Chapter 6, the authors explained why the faculty of color in their sample stayed in the academy despite the difficulties they encountered. They found that these faculty members loved teaching, had supportive administrative leadership, felt a sense of accomplishment when their actions led to some change, had developed friendships with colleagues, and felt committed to their communities and other faculty of color. Utilizing their data and a review of exemplary programs, Turner and Myers also suggested that successful retention of faculty of color requires mentoring and support for research and publication.

Chapter 7 suggested that market forces (such as low academic wages) provide a more complete account of why faculty of color were underrepresented than pipeline concerns. Minorities were underrepresented in doctoral programs, but there was a considerable drop in numbers from minority doctoral degree attainment to tenured faculty positions, leading them to conclude that the under-supply of Ph.D.'s is not the sole cause of the underrepresentation. Better academic wages will improve the numbers of faculty of color. In their last chapter, Turner and Myers summarized their findings and discussed the importance of acknowledging diverse experiences in the academy. They discussed strategies for improving the representation and circumstances of minority faculty, highlighting the need for networking, mentoring, and affirmative action. They concluded that serious and sustained organizational change is needed to ensure a campus culture of inclusivity, cooperation, collaboration, and community.

Like Rai and Critzer, Turner and Myers provide compelling evidence of the underrepresentation of minorities and the difficulties faced by those already in faculty positions. In this regard, their work compares well with other such studies (see, e.g., Gregory, 1995; Padilla & Chavez, 1995; Tierney and Bensimon, 1996). They provided reasonable recommendations and illustrated how successful recruitment and retention of minorities is not just desirable but possible, and their support of affirmative action echoes that in recent works (Garcia, 1997). And, most significantly, as they intended, they leave us with hope.

As with a large number of other qualitative studies, however, I have a small problem with their tendency to leave quotes "hanging," i.e., quotes without analysis. This "problem" may reflect our different training in qualitative research: many researchers prefer to let the respondents "speak for themselves," while others, like me, prefer to press their arguments by highlighting their readings of what respondents say. At any rate, occasionally I felt that their quotes could be interpreted to mean something other than what they indicated. For example, on page 90, they quote a male American Indian as saying that "Rightly or wrongly, many of my nonminority colleagues . . . are never 100 percent sure that a minority person is here because they are good at what they do or because of affirmative action." Turner and Myers indicated that this quote relates to the faculty member's belief that minorities have to work harder than Whites. I would read this quote as suggesting that minorities are stigmatized by race, which is a more difficult problem to resolve than the feeling that one works harder than another. The stigmatization caused by race, as Goffman (1963) explained, is ensured by both the "stigmatized" *and* the "normal" (Goffman's terms) through their social interactions. Certainly, the phrase "Rightly or wrongly" beginning the quote suggests that this faculty member feels there is some truth to the accusation, or at least it reflects that he might have a more conflicting perspective about this issue than indicated by the authors.

Another concern that relates perhaps to our different training in qualitative research is their emphasis on similarities, both across the groups and within each group. When one focuses on similarities, however, one misses the nuances of how individuals construct and negotiate their experiences, and, more importantly, how racial and ethnic bias might be both furthered and contested by each individual interacting with others and with social institutions. I've grappled previously with the interplay between human agency and social structures with regard to racism, and I concluded that individuals create racial structures which in turn constrain them. Race structures are perpetuated through classifying and normalizing institutional practices (e.g., such as promotion and tenure processes) which can only be created and maintained by individuals acting in ways that reproduce them (see Baez, 2000a, 2000b). I appreciate that Turner and Myers focused on similarities in order to press their argument for particular kinds of institutional policies, but by not highlighting individual differences it is difficult to know whether a particular environment will be supportive of those policies, and, more important, whether faculty members will thwart those policies unintentionally.

Finally, I think that there needs to be a more complex understanding of Whiteness (in Rai and Critzer's work as well). Turner and Myers indicate, for example, that faculty of color are made to feel that they must represent their groups, a hypervisibility that is not experienced by Whites, and especially White males. I don't disagree with this finding so much as I think that we must be leery of such essentialism when we come across it. For one, a static notion of Whiteness de-racializes Whites, a project that ultimately reinforces race as a concern only *of*, and *for*, minorities. Race, however, is socially constructed, and, thus, if race structures the experiences of minorities, it does so for Whites as well, though perhaps the latter processes might be covert and much harder to recognize. More important, the category of Whiteness itself has to be unpacked from its assumption of a particular norm: that of the wealthy, heterosexual, male, WASP. Whiteness must be analyzed across ethnicity, gender, sexuality, class, and religion, each category presenting a particular subjectivity in itself, and in conjunction with the others, that in particular settings and at particular times may give a White person similar, but not identical, concerns about bias, isolation, and so forth. Indeed, the essentialism that informs these (and most other) projects leads to a politics of representation that may prove counterproductive to social change.

### *The Politics of Representation*

The politics of representation bases its arguments for diversity on the comparison of academic representation rates with relevant population rates, such as the general population or the percentage of minorities with Ph.D.'s. Rai and Critzer and Turner and Myers prove that minorities (and White women) are underrepresented in faculty positions with regard to most population subsets. But what kinds of possibilities and foreclosures do politics centering around such comparisons permit? And what are the effects of linking a politics of emancipation (i.e., efforts to increase diversity) to representation rates?

For one, if one adheres to a comparison based on representation rates, then the problem of Asian Americans arises. Asian Americans, being *over*-represented in many aspects of higher education, have been effaced from the affirmative action discourse, despite evidence in the two books discussed here indicating that they still suffer discrimination. Turner and Myers suggest that depending on the populations used, Asian Americans might be "*appropriately* represented" (p. 76). How does one arrive at such *appropriateness*? Would it be *inappropriate* for minorities to be over-represented? How would one defend affirmative action in states like California, if the predictions are correct that minorities will become majorities? Will Latinos/as in those states, who seem to be increasing their representation in academe, be vulnerable to the kinds of claims currently faced by Asian Americans—that they are no longer in need of affirmative action? And if predictions about the rapid increase of minorities are realized, at what point will White males' claims to underrepresentation be legitimate?

I raise these questions to show that such politics, without critical self-reflection, may provide opponents with the very terms of resistance as demographics shift, just as the notion of color-blindness so crucial to the policies gained by the civil rights movement now has proven to be the

Achilles' heel of those policies. Furthermore, and more important, I wonder whether such policies of representation recirculates the effects of racial oppression. That is, such policies take as given, rather than question, racial (and gender) distinctions. Rai and Critzer's and Turner and Myers' books both highlighted the experiences of different social groups, providing quantitative and qualitative evidence of their discrimination, perspectives, and concerns. Turner and Myers specifically argue that what "unifies us is a common attention to, respect for, dependence on, and appreciation of our differences. They matter!" (p. 156-7). Certainly, emphasizing such differences makes people aware of the problems faced by, and contributions of, minorities. But one must be leery of taking, as Scott (1991) indicated, the "evidence of experience" and transforming it into the "evidence of difference." Rather, one must question, as Scott argued, "how difference is established, how it operates, how and in what ways it constitutes individuals who see and act in the world" (p. 777). In other words, a policy of representation should question how the discursive and ideological practices of academic, institutional, social, and political action position us as different and produce our identities and experiences.

One possible start is the questioning of traditional academic practices, such as the Ph.D. requirement and the emphasis on scholarship. These institutional practices, apparently facially neutral, clearly create differences. But neither Rai and Critzer nor Turner and Myers question them. Rai and Critzer purport merely to describe institutional hiring practices and offer no recommendations about them. Turner and Myers, however, provide recommendations for working around these practices (e.g., mentoring, more research support, etc.). But by working within the confines of prevailing academic practices and the assumptions underlying them—such as scholarship is good—both books do nothing to question how differences are established and maintained in the academy. In the past, academic practices thwarted the goals of diversifying the faculty, and evidence shows that they continue to do so. Any politics of representation might look at itself to determine whether its assumptions actually thwart its objectives.

Furthermore, the politics of representation must be leery not only of recirculating the effects of centuries-old racial stratification but also of its call to the state to remedy this stratification. Rai and Critzer, in particular, indicate (unintentionally) that the state, which has historically discriminated against minorities and White women, now provides the best hope for them. The state here is figured both as oppressor and liberator. But any notion of the state as liberator is questionable, as we have seen its oppressive tendencies in California, Washington, and a host of other states which have attempted to eliminate affirmative action. More problematic for me is the emphasis on legal rights that informs much of the discourse on affirmative action and diversity. Such rights discourse embeds the issues of affirmative action and diversity within the discursive field of law, which gives meaning and organization to social institutions and defines justice in ways that serve particular interests and values (see Weedon, 1987).

An analysis of legal rights in affirmative action discourse reveals that courts treat any racial classification as invidious discrimination, disconnecting state action from its historical and political contexts. The Supreme Court, in particular, recently has limited the abilities of states to resort to antidiscrimination principles to remedy the effects of past discrimination, while concurrently expanding the availability of such principles for White litigants challenging that remedy. As I've written before, as "texts" affirmative action cases reveal important aspects about the social world of the past 20 years or so. For example, the discourse on color-blindness redefines affirmative action as the kind of state practice that echoes the state-sanctioned discrimination prevalent before the mid-1960s. This re-deployment of color-blindness clearly furthers the injuries of racial discrimination (see Baez, 1999). Given the law's power to injure, any emphasis on law in pro-affirmative-action politics must be deemed problematic. Indeed, any attempt to call forth the state to remedy centuries-old racial (and gender) discrimination, as Brown (1995) argued, "casts the law in particular and the state more generally as neutral arbiters of injury rather than as themselves invested with the power to injure" (p. 27). The legal framework is powerful, but perhaps affirmative action can be re-deployed in non-legal terms, such as one of professional autonomy (though that too may implicate the law). My point is that although we may need the state to intervene, dangerous as that may be, calling forth its involvement, uncritically, may prove detrimental to social justice.

In conclusion, Rai and Critzer's *Affirmative Action and the University* and Turner and Myers' *Faculty of Color in Academe* provide compelling evidence of the need for diversity. These books relate what we currently have in higher education, and where we are heading. Turner and Myers state that we must support diversity efforts, but "it is also apparent that we cannot restrict ourselves to those paths that have yielded little or no systemic change, and we must find other paths as well" (p. 59). I agree. These books provide us with a starting point for moving beyond the discourses established by centuries of discrimination, but now we must find other paths as well. These other paths might include critiques of the very categories that inform our notions of diversity. Our social categories, and the subjectivities and politics they engender, must be deconstructed in order to discover their ideological and discursive bases, and these bases must be destabilized and their effects minimized.

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# Book Reviews

*Higher Ed, Inc.: The Rise of the For-Profit University,* by
Richard S. Ruch. Baltimore, MD: The Johns Hopkins
University Press, 2001. 208 pp. $32.50.

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Who needs for-profit corporations to run our colleges and universities? Aren't most universities too corporate already?[1] Instruction at a four-year proprietary for-profit junior college where I once worked was so impressive, I was attracted by the author's paean to the teaching virtues of the corporate for-profits. Dean at nationally advertised De Vry Institutes of Technology, Ruch spent a couple of decades as English professor at various middle-tier non-profit institutions. I too have done stints at one for-profit private and three state universities. For-profits, he claims, constitute the only sector of American higher education that is growing.

## *What are the For-Profits?*

They are higher education systems owned and operated by publicly traded for-profit corporations. Besides the author's own DeVry, they include Quest Education, founded in 1988, an aggressive acquirer of non-profit colleges and now with more than 30 campuses; Strayer University, University of Phoenix, Rider University, and Argosy Education Group. There are over 600 degree-granting for-profit colleges and universities in the U.S. that employ about 5% of all full-time faculty.

## *Critique of the Non-Profits*

Although it is positive in tone, the book is really a critique of the *non*-profits. Unlike traditional colleges, the for-profits have no expensive residence halls, faculty dining facilities, stadiums, sports teams, or president's houses. Ruch seems needlessly generous, for he did not bother to mention that entertainment athletics are a major marketing tool for public non-profits because of their appeal to students, donors, and state politicians. He is proud that his colleges rarely offer release time for research and non-teaching activities yet he fails to distinguish between scholarship for publication and the kind of scholarship that nurtures good teachers. Stranger still, he seems unaware that research priorities in big universities can and do entice faculty there to neglect their teaching.

Most non-profits do earn a profit, he declares, but they quietly shuffle it among funds. Then too, there is much unacknowledged economic gain in many of the non-profits that takes the form of high administrator and star researcher salaries and substantial overhead charges on grants. The claim of traditional universities to a higher moral virtue, he suggests, seems to have grown out of their historic association with churches. Then too, the power of the faculty often encountered in non-profits may contribute to inefficiency and higher costs of operation. Equally irresponsible is politician power, trustee power or donor powerCall of which can be benign but often are not.

### *Effect on Institutional Purpose*

The profit motive may have a positive effect on institutional purpose. For example, a for-profit institution will seek to utilize its facilities as efficiently as possible. A dean is more likely to spend his time attending to student performance, launching and managing new instructional programs and supervising the work of the faculty than his non-profit counterpart. In contrast, the non-profit dean is more likely to be consumed by representing the faculty to constituent groups, protecting turf and justifying the allocation of new resources. In for-profits, such chores are centrally managed and consume less time and resources.

### *Ethical Dilemmas*

A characteristic of for-profits is that many students enroll because they have deliberately been sold on a particular program by college agents. This effort to recruit an indecisive prospect, Ruch contends, is often to the student's benefit. As a former representative of a proprietary college, I am aware that the ruthless and deceptive practices sometimes employed to meet competition can raise important ethical questions. The author, in his enthusiasm, tends to gloss over such matters. Nor are the public colleges pristine. Many of my students have been attracted by the state university sports corporation's football and basketball entertainmentCinstitutional features with no more merit than the pitch of an articulate salesman.

### *Advantages of the For-Profits*

Ruch is proud that his institutions stress student employability. Higher education, he notes, often unfits rather than fits a man for earning a living. His colleges emphasize high demand curricula and careful career placement.

Accreditation too becomes a business necessity. For-profits suffer less external regulation and oversight than the non-profits, in large part because there are no outside granting agencies to distract them from their teaching role. Although not entitled to tenure, faculty are eligible to buy stock and thereby participate in their college's success. However, they do not qualify for the TIAA-CREF retirement annuity program. Teaching contracts are for five years and can be renewed.

Ruch believes that his teachers enjoy being a member of a teaching community because it focuses their careers on students rather than on building a national reputation for themselves. Even the campus facilities tend to be neater and well kept because appearance helps sell the program.

## *Doubtful Assumptions*

Most doubtful of the author's assumptions is that "consumer driven" means quality. Varsity football is consumer driven, but its effect on educational goals can be corrosive. The author assumes that students will demand a rigorous and substantive educationCmaybe! The for-profit's emphasis on applied practical knowledge is especially intriguing because, in contrast, much traditional college attention has stressed, instead, the market value of status enhancement. On the other hand, Ruch's account conveys the impression that many for-profit students are working towards semi-professional certifications that make them readily employable.

## *Academic Freedom*

For Ruch, a strength of the for-profits rests in the fact that everyone's work is supervised by someone else. The result is less independence for an instructor than in traditional academic cultures. De Vry's Academic Policy Manual calls for tolerance for differing views and discretion regarding the sensibilities of students and others. But, it says, "DeVry reserves the right to establish the educational mission and the goals of the curriculum, and requires the faculty to address the course terminal objectives which define the scope and level of their courses." Such policy can contribute to well-structured and effective instruction, but it is not in the spirit of academic freedom. Ruch argues that all this is tempered in the for-profits by student opinion. Students *are* customers and their state of ignorance or enlightenment must be taken seriously by management. The author assures us that this does not mean giving away grades and watering down rigor for the sake of creating happy customers. However, widespread summative use of student ratings on faculty in a majority of American colleges has contributed precisely to a decline in standards. There is no evidence that the for-profits offer a solution to this problem.

Surprisingly, Ruch contends, academic freedom is greater in the for-profits because there is no emphasis on research. Customer satisfaction, not grantsmanship is where profits lie. Of course, if student appraisals of teaching are treated summatively, unpopular insights in the classroom are likely to prove unprofitable to faculty. Curiously, nothing is said about the use of such evaluation practices among his teaching corporations, although one might have expected money driven bureaucracies to employ them as a tools for making "merit" decisions. The author claims that some teachers he interviewed found no problem turning to colleagues for "insight and support" and were not fearful of one another as competitors. Yet he makes no mention of the existence of any well-defined salary schedule that might have been employed to encourage this kind of collegiality.

Another benefit of for-profits, is that they are market driven. But market implies bottom line, not social responsibility. The author believes that students will demand quality, and I am sure that the dedicated ones will. But most are driven by practical job considerationsCby certificates, licenses and even degrees. I sympathize with his effort to define quality in term of "useful results" and "quality of outputs" but he's vague about how this interfaces with the profit motive.

### *Are They Really Different?*

Like the for-profit business corporation, traditional college management is also authority-centered; nonetheless, among the non-profits there still remains a strong tradition of faculty involvementCa fundamental difference.

Management ranks are much leaner in the for-profits. Administrators don't need to spend time as fund-raisers. Funds are generated by student responsiveness to the quality of the instructional program. Emphasis is on results. Average class size at DeVry is 37; classes under 15 are avoided. These new corporates flourish on the edges of the higher education market where they cater to lower socio-economic status young people and older persons changing careers. There is no graduate school and no pressure on faculty to publish.

As for revenues, nearly 95% of for-profit colleges' revenues come from tuition and fees in contrast to 42.4% for private non-profits and 18.4% for public non-profits. Also, the for-profits pay taxes. There is less waste of unused funds; in the non-profits, unspent funds are often lost to the unit, discouraging their efficient use.

Do the corporates accept responsibility for addressing larger social needs? There is no hint of that in this book. "Doing social good is not the primary object of for-profit universities," says Ruch.

### *Is the Non-profit/For-Profit Distinction Really Useful??*

Despite its hype, this book expresses considerable candor about this effort to do well while doing good. It redirects an important sector of higher education back to traditional teaching.

I am persuaded that the for-profits take teaching seriously and have, within the narrow limits imposed by the quality of their students, structured effective programs. They have consolidated financially weak colleges not unlike the earlier super-marketization of the one-family local grocery. Some have even provided a brand name of sorts to their product. In contrast, big universities, public and private, have long neglected the quality of their teaching in favor of graduate programs, funded research and entertainment sports; the for-profits, to their credit, responded by moving into that teaching breach. For them, private investment functions as a sort of self-interested "endowment" dedicated to practical undergraduate teaching. It offers a point of light on a troubled sea.

### *Notes*

[1] This is the argument endorsed in the anthology edited by White, Geoffry D. (2000) Campus, Inc.: Corporate Power in the Ivory Tower. Amherst, NY, Promethus Books.

*Understanding Faculty Productivity: Standards and Benchmarks for Colleges and Universities*, by Michael F. Middaugh.
Jossey-Bass, 2001, 233 pp. $34.00.
ISBN 0-7879-5022-X.

EILEEN M. DOHERTY, Boston College, Chestnut Hill, Massachusetts

Michael Middaugh, Assistant Vice President for Institutional Research and Planning at the University of Delaware, has become widely known as an expert in the field of faculty productivity and instructional cost analysis. His recently published book, *Understanding Faculty Productivity*, traces the evolution of the National Study of Instructional Costs and Productivity, now informally known as the Delaware Study, from its inception (by Middaugh) in 1992 to the present.

Middaugh's primary thesis is that "colleges and universities have done a horrible job of communicating to both internal and external groups precisely what faculty do and how well they do it" (page 1). He presents the benchmarking data available from the Delaware Study as a credible means of responding to requests for accountability—from both institutional administration and external publics—since they provide quantitative performance measures of who is teaching what to whom, by academic discipline. More recently, the Delaware Study has also introduced qualitative performance measures to its analytical framework.

Middaugh begins the volume with a review of the research on faculty productivity by The National Center for Education Statistics (NCES) and the Joint Commission on Accountability Reporting (JCAR). He presents NCES tables resulting from two surveys conducted as part of the National Study of Postsecondary Faculty (NSOPF)—one done in 1988 and another in 1993. These tables show both the mean hours worked per week by full-time faculty by Carnegie classification and by program area (for 4-year institutions), and the percentage distribution of those hours across teaching activities, research activities, administrative activities, and other activities. Middaugh argues that these data represent largely self-reported input measures, and do little to answer the following questions:

(1) What are the concrete products of these hours spent in various activities, particularly teaching, which constitutes the greatest block of time?
(2) Which students are being taught by which faculty and with what results?
(3) Are undergraduates being taught by those faculty in whom a college or University has the greatest investment—tenured and tenure-track faculty?
(4) Are students graduating with marketable skills? Are they going on to graduate study?

Middaugh also reports that the NSOPF data include tables demonstrating productivity (again, self-reported) in major non-instructional categories of activity—refereed or juried publications, reviews and non-refereed publications, books and book chapters, monographs and technical reports, presentations and exhibits, and patents/copyrights/software. He questions whether these are the "right measures" to reflect faculty productivity, and suggests that a linkage between the time spent in teaching or research activity, and specific outcome measures from those activities, is required.

Next, Middaugh focuses on the work of the Joint Commission on Accountability Reporting, which was established in 1996 by several of the major higher education associations in Washington, DC He credits JCAR with providing "tangible measures for discussing the higher education enterprise," since its focus has been on output measures with consistent definitions and reporting formats (p. 51). JCAR combines measures for describing faculty assignments during an academic year, with baseline output measures of faculty activity—student credit hour production, student retention and graduation rates, postgraduation job placement, and professional licensure pass rates. Since Middaugh was a member of a JCAR technical work group on faculty activity, he takes particular care in describing the contributions of this group, especially the concept of a "service month" as a unit of work equivalent to one person working full time for one calendar month. The service month is allocated by function in the JCAR studies, i.e., by teaching, research, or service. In terms of JCAR's shortcomings, Middaugh claims that the methodology does not work well for complex institutions. Since it measures instructional activity solely in terms of student credit hours, it overlooks faculty time devoted to instruction in zero-credit classes (such as discussion and lab sections), as well as to direction of master's theses and doctoral dissertations. It also fails to tie outcomes to faculty research and service activities.

After reviewing the NCES and JCAR methodologies for describing faculty productivity, Middaugh shifts his focus to the ongoing efforts of the Delaware Study—which he presents as a much more complex and sophisticated management tool than its predecessors. Prior to reviewing the actual definitions and data collection forms currently in use by the Delaware Study, he devotes two chapters to building a quantitative framework that provides management information for deans and department chairs, and that addresses the gaps in the JCAR approach to studying faculty productivity. In doing so, he offers several salient pieces of advice to staff charged with capturing faculty workload data.

(1) Develop departmental teaching rosters which record both 0-credit as well as for-credit sections taught by faculty. Be certain to pick up all the enrollments from cross-listed courses, and to apportion team-taught sections and the related credit hours between the faculty members involved. Distinguish supervised study from organized sections, and include the associated credit hours in the roster.

(2) Review these rosters at least once each term with department chairs and deans, and hold them accountable for the accuracy of the data. Build in incentives (or disincentives) for this responsibility, by tying the data to instructional costs, which will factor into resource allocation decisions.

(3) Develop "budget support data" tables, which reflect several years of teaching workload and fiscal results for the department. These tables are intended to provide a linkage between teaching productivity and academic budget and resource planning.

Having emphasized the value of the reporting mechanisms described above for decisions about deploying faculty and fiscal resources, Middaugh points out that once these reports are compiled on a routine basis for all academic disciplines within an institution, cross-departmental comparisons within similar areas, as well as trend analysis over time, are facilitated. However, he posits that the data become much more meaningful when they can be compared with the same departments at different institutions within appropriate peer groupings. Hence, the significance of the Delaware Study—which currently collects benchmarking data from over 300 institutions—and which has become the official teaching-workload database for major data-sharing consortia such as the Association of American Universities Data Exchange, the Southern Universities Group, and the Higher Education Data Sharing Consortium. Middaugh provides a detailed explanation of the data elements required for participation in the study, with close attention to the quantitative benchmarks that were initially defined in 1992 and later refined by an advisory panel whose work was funded by a grant from TIAA-CREF. He then follows with a review of the aggregate instructional productivity and cost results derived from four cycles of stable statistics derived from the Delaware Study in the mid-1990s. He also presents concrete examples of how the University of Delaware and certain public universities and systems have used inter-institutional comparisons to inform management decisions about academic planning and policy analysis.

While Middaugh's work is clearly a tremendous surge forward in the effort to understand what faculty do and how well they do it, there is considerably more work to be done in this arena. In order to capture valid statistics from study participants that will lead to reliable comparisons between peer group schools, Middaugh has defined the data elements, especially on the expense side, in a relatively simplistic fashion. Consequently, for fairly complex institutions, struggling to determine an appropriate balance between teaching, research, and service activities—consistent with the school's mission, and affordable given resource constraints—certain key questions are left unanswered.

In relation to faculty workloads, Middaugh's overriding concern is to demonstrate that higher education is realizing a return on its investment in tenured and tenure-track faculty. Thus, although his data collection instrument is carefully designed so as not to overlook items such as 0-credit organized sections taught by a department's full-time faculty (a shortcoming cited earlier by Middaugh in relation to the JCAR study), there is an underlying assumption that all of a faculty member's instructional responsibilities will be captured either by credit hour data or section counts. However, for research institutions with graduate programs that involve considerable interaction between the faculty member and the individual student (oftentimes in a laboratory setting), this methodology fails to identify the significant time commitment made by full-time faculty to what is oftentimes non-credit-bearing activity. Similarly, for undergraduate programs offering a "customized" learning experience, the methodology again underestimates the resources involved in focusing on the individual student. The missing element in both of these instances is a mapping of the faculty member's time to undergraduate and graduate offerings within an academic department.

Although Middaugh's calculation of full-time equivalent faculty takes grant buyouts and other contractual non-teaching obligations into account, the treatment of course reductions for administrative responsibilities, and the metrics used to convert part-time faculty and teaching assistants to full-time equivalents, can lead to non-standard results. No guidelines are offered on how to determine the full-time equivalent status of faculty members in an academic department who perform administrative roles such as chair or program director. Should their FTE status be determined on the basis of credit hours taught? Middaugh assumes that twelve hours per semester is a broadly accepted standard for a full-time teaching load (an assumption open to debate by many private institutions), yet faculty members with administrative responsibilities oftentimes teach far fewer hours than their colleagues of comparable rank. Middaugh also recommends that the twelve-hour metric be used as a conversion factor for part-time faculty and teaching assistants—whose overall FTE status he assumes is regularly recorded on the institution's personnel system. In an "ideal" world this might be the case, but the reality is that part-time faculty and teaching assistants very often play less conventional roles, e.g., they lead discussion groups and supervise field work, that don't compare easily to hours required to teach a typical section.

On the expense side, Middaugh incorporates only direct expenditures in the Delaware Study—so as to focus on data that are credible and verifiable. Yet, he also assumes that departmental funds used to support faculty research and service activities should be included in the instructional cost analysis, and in the unit cost statistics derived from this information. This approach is misleading, since the strategic direction of many academic disciplines is determined by the level of resources allocated to support faculty research. Middaugh's response to this criticism is that the introduction of qualitative benchmarks to the Delaware Study—such as the number of refereed publications produced by a department—will supply a better proxy for the level of research activity in a discipline. For science departments and other disciplines that rely heavily on external funds, Middaugh would turn to the ratio of external research dollars per FTE faculty on appointment as a Delaware Study statistic that conveys research productivity.

One final area of academic activity that seems neglected by the Delaware Study methodology is graduate education. As mentioned earlier, the focus on student credit hours generated by organized graduate sections and credit-bearing individualized study does not truly identify the resource commitment to this course level. In addition, Middaugh elects to view instructional resources in the aggregate, and computes ratios which compare those resources to student credit hours and FTE students taught. The outcome is statistics that can mask the significant allocation of resources by a department to a relatively small proportion of the students it services. Although the Delaware Study facilitates inter-institutional comparisons of academic departments with comparable emphasis on graduate education (i.e., in terms of credit hours and highest degree granted), the missing element is the allocation of funding to the graduate program.

Despite its limitations for complex institutions, the Delaware Study offers smaller institutions and those schools with an emphasis on undergraduate instruction a valuable tool for responding to accountability concerns and for resource allocation decision-making. In addition, large public institutions that can identify peer groups with comparable goals and organizational structures might also find the benchmarking data helpful in responding to internal and external constituencies. Although Middaugh is presently engaged in refining the analytical framework of the Delaware Study so as to develop qualitative measures of the research and service activities of faculty in disciplines where external funding is not available, it is hoped that he will continue to increase the sophistication of the quantitative framework and begin to address some of the concerns outlined above.

## *Land-Grant Universities and Extension into the 21st Century: Renegotiating or Abandoning a Social Contract,* by George R. McDowell

KEITH L. SMITH, Ohio State University Extension
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### *Book Overview*

George McDowell's book places land-grant universities at the center of the question, "How will the university of the future serve a public who has unlimited access to unlimited amounts of information?" Underscoring his probing in this area is his assertion that outreach functions of the land-grant universities have been postponed too long.

McDowell addresses this question with a fervor that if audible would certainly echo through the halls of academia. Though the major part of the book reflects the opinions, and even biases, of McDowell, he reinforces his thinking with excerpts, quotes or ideas from recent publications and interviews with current or former leaders of universities and extension services. A sampling of those included are the Kellogg Presidents' Commission, Earnest Boyer, John Byrne, Lyla Houglum, Peter Magrath, Ed Schuh, Maria Tymoczko, and C. J. Weiser. He observes that despite the breakneck speed of change in both universities and society at large, extension is stuck at the mid-century point. "The problems of the society during the Golden Age of agricultural research and extension in the middle of the 20th century" (p. 10) still characterize the agenda of most extension programs today. Herein lies the author's "mundane and pragmatic" thesis: "Without greater engagement of the universities with the society, the public universities are in peril. Without that engagement, not only will the universities not be able to contribute to the pressing problems of the society, they will not be able to understand or renew the evolving culture, accurately or effectively interpret history, or significantly expand the understanding of the human condition" (pp. 26–27). McDowell is frustrated by the fact that land-grant institutions did not heed the calls for reform, thus setting the stage for his visualization of the future of land-grant universities and extension by providing a historical overview of their successful progression through the years but then painting a bleak picture of their status as they have entered the 21st Century. He offers a series of predictions, questions, recommendations, alternatives, and challenges that university leaders, extension leaders, and community leaders must jointly address, debate, examine, and experiment with if the 21st century land-grant university is to renew its social contract with the American people.

An overriding concern of McDowell's is that "extension staff and leadership have lost their way and have been taken hostage by farm and commodity groups" (p. 73), not to mention the negative effect of extension's connection with the USDA: "As one contemplates the future of the land-grant universities and the role of extension in their outreach activities, it is not difficult to argue that the partnership with the USDA is a significant liability to broadening the extension portfolio and engaging more parts of the universities under extension" (p. 124). Interestingly, he offers ideas on alternative federal partners that represent true "out of the box" creativity. He proposes three scenarios: (a) dividing formula funds by major programs and partner with the USDA, the Department of Health and Human Services, the Department of Education, and the Department of Commerce; (b) administration of extension monies by the National Science Foundation; (c) establish a Corporation for Public University Outreach to provide overall coordination of program delivery (pp. 126–127). Thus, McDowell doesn't simply stop at raising concerns and criticisms of the land-grant university and extension but goes the next step of making recommendations for re-engineering not only the federal partner but extension's structure within the land-grant system, as well as the university's social contract with the people of each state. Scenarios are included from universities and/or their extension services that have implemented new organizational or administrative structures or are experimenting with new programming or new types of partnerships.

The book is timely and provides a definite contribution to the knowledge base and practice of the land-grant university and extension. The real life scenarios (some successful, some not) serve as ideas, precautions, conversation starters, success stories, and lessons to others. This book should be required reading for leadership teams who are accepting the challenge of reinvention and restructuring. Lively and philosophical debates regarding the author's ideas, recommendations, and predictions should take place prior to decision making that relates to reinvention.

The book makes reference to and in some cases provides overviews of recent publications that address similar and current issues of land-grant universities and extension. The book's compilation of organizational statistics from both a national and historical perspective serves as an excellent resource for extension personnel conducting new personnel orientation and for graduate students who are conducting extension related research. It will serve as an excellent textbook or supplementary reading for graduate-level courses focusing on the history of land-grants, the history of extension, or issues in extension.

Who should read this book? The content, the challenges, and the "out-of-the-box" thinking makes it critical reading for administrators of land-grant universities, administrators and faculty of outreach and engagement, of extension, and colleges of agriculture or their equivalents, Cooperative State Research, Education, and Extension Service (CSREES) administrators, state and federal legislators and policymakers. The National Science Foundation and Farm Bureau and other state and national agricultural organizations should also read this book. Following the reading by these various individuals and groups, dialogue must take place between and among them and action explored to address the issues presented.

In conclusion, readers with a passion for land-grant universities and cooperative extension services will experience various reactions as they read this book. Some may react with frustration, denial, disagreement, bitterness, and anger, while others may experience fear, guilt, hopelessness, and panic. Still others may react with agreement, hoping that the book will stimulate change, affirmation of their own thinking, excitement and motivation to address the issues of maintaining, or as some would see it, remaking the 21st century land-grant university once again the people's university. As Paul A. Miller closed his foreward to McDowell's book, we would like to conclude our review with a quotation from Ortega y Gassett's *Mission of the University* (1944), "The university must be open to the whole reality of its time. It must be in the midst of real life, and saturated with it [and] . . . must intervene, as the university, in current affairs, treating the great themes of the day from its own point of view: cultural, professional, and scientific."

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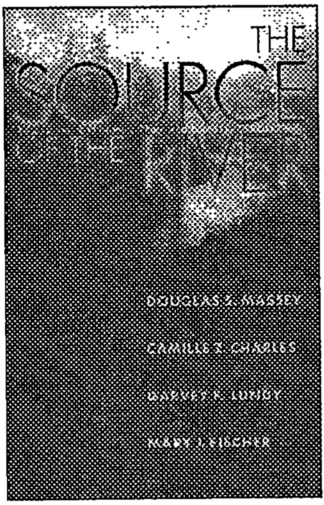

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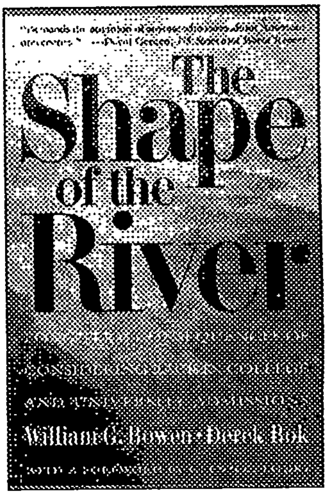

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*Advancing the Scholarship of Teaching Through Collaborative Self-Study*
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*The Effects of Part-Time Employment and Gender on Faculty Earnings and Satisfaction: Evidence from the NSOPF:93*
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*Alumni Perceptions Used to Assess Undergraduate Research Experience*
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Susan H. Frost
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# Bridging the Disciplines

## Interdisciplinary Discourse and Faculty Scholarship

> *The Luce Seminar is . . . almost like a hub, the spokes coming out, so many different things going on, and each one touches an important aspect of what Emory is about.*
>
> *I saw it as a benchmark in my intellectual development. . . . I don't approach any topic without . . . wanting to know what other disciplines have said about it. I am a better teacher, a better professor . . . a better citizen of the community, because of the seminar.*

Although some scholars and academic leaders pay lip service to the need to create a vibrant "intellectual community," others view the ingredients of such a community as key to sustaining high quality faculty work. Their idea of lively and genuine scholarly exchange is far from ivy-clad nostalgia. In their view, a strong intellectual community not only supports interaction across disciplines, but also helps connect the larger purposes of scholarly inquiry.

Because current demands to connect teaching and research across fields of inquiry are influencing all types of institutions, this need has extended from the more elite research institutions to the full range of higher education. However, trends suggest that successful connections may be hard to achieve. The industrialization that followed World War II created an unprecedented demand for new knowledge. In turn, economic and technological expansion fueled the development of professional expertise in the disciplines that continues unabated (Bender, 1998; Geiger, 1993). Some scholars suggest the need to rein in the dominance of disciplinary specialty. Concerned that overemphasizing disciplinary

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expertise may reduce the richness of local interaction and dilute the coherence of academic culture, they seek to develop mechanisms for intellectual exchange aimed at integrating knowledge across fields (Austin, 1990; Boyer, 1990, 1997; Clark, 1983; Damrosch, 1995; Dill, 1991; Kerr, 1982; Tierney & Rhoads, 1994). Even though intellectual interaction across disciplines seems to improve the ability of scholars to address societal problems, the caliber of solutions they pose, and the quality of academic life in general (Benson, Harkavy, & Puckett, 1996; Boyer, 1990, 1997; Hollingsworth, 1996; Rice, 1996), disciplinary specialty erodes the vitality of local connections.

Assuming that local connections across disciplines contribute to the quality of scholarly work, leaders at one research university initiated an eight-year experimental program of in-depth discourse among faculty from a wide variety of fields. Such programs appear to help scholars overcome barriers that can impede meaningful interaction (Klein, 1996). In a previous qualitative analysis, we examined some ways the program supported intellectual exchange and community (Frost & Jean, 1999). In this qualitative analysis based on the perceptions of the participants, we seek to gauge the potential breadth and depth of the program's effects on the ways faculty members think, work, and interact. To provide foundation for our findings, we explore some aspects of academic culture and disciplinary specialty that influence such programs, regardless of location or type.

## *Academic Culture, Disciplinary Specialty, and Faculty Programs*

Since Clark described the cultures of the academy in 1983, scholars have explored the forces that influence the attitudes and practices of faculty (Austin, 1990; Cameron & Ettington, 1988; Dill, 1991; Peterson & Spencer, 1990; Tierney & Rhoads, 1994). These forces include patterns of attitudes, meanings, symbols, and behaviors that coalesce around disciplines, institutions, and the profession. The culture of the discipline, for example, consists of a "knowledge tradition" that includes categories of thought, a common vocabulary, and related codes of conduct. The culture of the institution surrounds individual universities, generating loyalty through symbols of unity while permitting various subcultures to flourish. The culture of the profession influences all disciplines and institutions, providing the foundation for a single "community of scholars." In the normal course of intellectual interaction, these forces intersect, clash, divide, or mutually reinforce faculty work (Metzger, 1987). Some clashes result from favoring disciplinary expertise at the expense of local interaction, potentially diminishing the sense of shared purpose that should bind members of the academic profession (Austin, 1990; Barnett, 1994; Becher, 1987, 1994; Bender, 1993; Boyer, 1990, 1997; Clark, 1983; Damrosch, 1995; Dill, 1991; Kerr, 1982; Newman, 1996; Ochs, 1984; Tierney & Rhoads, 1994).

One can trace this sense of purpose to the nineteenth century, when John Henry Newman described university life as local, "familiar intercourse." Cardinal Newman (1875) believed that the notion of universities as centers for the pursuit of useful and profitable knowledge threatened the locally shared sense of purpose that created virtue and meaning. The pursuit of "knowledge for its own sake" through local faculty interaction was still necessary "to adjust together the claims and relations to their respective subjects of investigation" (p. 101). In the mid-twentieth century, Robert Maynard Hutchins (1968) seemed to extend Newman's ideal. Believing that the purpose of a university was to "see knowledge, life, the world, or truth whole" (p. 108), Hutchins (1995) valued the pursuit of truth over academic specialty. Modern research universities, however, find the drives to produce specialized knowledge and maintain a viable intellectual community particularly hard to reconcile (Damrosch, 1995; Geiger, 1993; Ruscio, 1987). Moreover, scholars now suggest that such reconciliation can pay dividends for scholarship. Exposure to cutting-edge knowledge in other disciplines stimulates innovative research both within and across disciplines, particularly within the natural sciences (Benowitz, 1995; Hollingsworth, 1996; Rice, 1996). To advance informal and formal types of collaboration, university leaders seek new mechanisms for intellectual exchange that bridge traditional boundaries of knowledge (Austin & Baldwin, 1991; Bellah, 1996; Bohen & Styles, 1998; Boyer, 1990; Geiger, 1993).

The Luce Seminar program at Emory represents one such effort to reconnect its faculty through "familiar intercourse" and explore untapped potential for expanding the horizons of their scholarly thought and work. Programs aimed at enhancing intellectual exchange and expanding the horizons of teaching and research across disciplines face challenges revolving around the dominance of the disciplines in the scholarly and intellectual lives of faculty. How faculty think, work and interact are primarily circumscribed by disciplinary boundaries.

One potential challenge for such programs concerns the distinct theories, methods, and styles of discourse used to produce new knowledge within the disciplines. Some differences seem to coalesce around realist and relativist modes of inquiry (Becher, 1987, 1995). Realists stress the independent nature of knowledge, evidence, and the demonstrability of valid findings; relativists emphasize the nature of argument, persuasion, and ideology. Clusters of disciplines exemplify the range of difference within these modes. For example, the pure sciences treat knowledge as quantitative and cumulative, the humanities and soft social sciences as reiterative and pluralist, the hard social sciences as functional and utilitarian, and the applied or technical disciplines as purposive and pragmatic. Thus, the humanities tend to be concerned with particulars or complication and interpretation, the pure or natural sciences with universals and simplification, and the applied or technical sciences with know-how and mastery. The social sciences occupy the middle range between generalized, realist modes of empirical inquiry and particularized, relativist modes of inquiry. This difference forms an important distinction, which scholars may experience as distance from their colleagues in fields that are neighboring or distant from their own.

Another important disciplinary distinction concerns the different approaches of the professional schools and the arts and sciences to their scholarly missions (Becher, 1995; Bok, 1986; Clark, 1983, 1987; Halpern, 1987). The disciplines that provide professional training in theology, business or law, for example, combine academic and practical missions not found in the traditional arts and sciences. Yet within the academy, scholars value inquiry that is abstract, pure, or interesting for its own sake, sometimes assigning less status to work that has "immediate, practical utility" (Bok, 1986). Because many inside the academy consider the arts and sciences the heart of true scholarship, professional school faculty sometimes seek to establish their reputation as more than mere "trade school teachers" by signaling their respect for abstract scholarly values (Bok, 1986). Ironically, those outside the academy tend to value precisely the kind of inquiry professional education embraces and question the value of pure inquiry as it is practiced in the arts and sciences (Becher, 1995).

Communication outside one's home discipline has therefore become more difficult as fields of knowledge rely on increasingly complex contents, methodologies and jargons (Clark, 1983). The uncertainty of venturing into new territories of discourse can be daunting, revealing intolerance and ignorance and raising anxiety and defensiveness (Armstrong, 1980; Becher, 1994). Effective intellectual exchange among faculty requires overcoming such stereotypes and developing a mutual sense of respect and tolerance.

Differences in individual styles of learning and level of career advancement may also influence what faculty take away from programs designed to enhance intellectual exchange and scholarship (Armstrong, 1980; Baldwin, 1990; Bland & Schmitz, 1990; Centra, 1989). For example, some faculty may be oriented more toward learning that applies directly toward their research and teaching activities, while others seek stimulation through exploring general and abstract concepts. Variations in faculty seniority levels might also influence how a participant benefits from faculty programs. Senior faculty tend to become involved in long-term research projects aimed at establishing new theories and explore new avenues to expand their professional horizons. In contrast, because securing tenure and scholarly reputation concern junior faculty, they tend to gear their learning toward accomplishing these goals.

### *Case Study Background*

A Research I university located in the southeastern United States, Emory University consists of an undergraduate college, a graduate school of arts and sciences, and professional programs in business, law, theology, medicine, nursing, and public health. At the time the Luce Seminars were planned, Emory began a period of ambitious growth fueled by a substantial monetary gift and the vision of its president, James T. Laney. To increase the quality and intensity of scholarship among its faculty, the university added new faculty and increased support for research. From 1978 to 1993, when the president left office, research support had increased by over 450%, while the number of faculty increased by 50%.

Concerned that Emory's growth might increase intellectual distances among faculty, the president sought ways to strengthen scholarly connections. During the mid-1980s, he and others designed a program to support discourse across disciplinary boundaries and to enrich the breadth of scholarship. They aimed at generating a "community of discourse" that would not only counter academic specialization and isolation, but would also expand intellectual horizons and encourage cross-disciplinary research and teaching initiatives. With partial funding from a Henry Luce Foundation grant, the program took shape as a series of semester-long seminars exploring broad topics of common concern. A total of 85 participants took part in the Luce Seminars, which were held each spring semester from 1989 to 1996. Between 9 and 12 faculty members from various disciplines participated in each seminar. They read broadly on a topic of common concern and convened twice weekly for discussion. Most participants were released from teaching responsibilities for the semester. In some cases, however, departments substituted release from committee work or other assignments. In a few cases, participants received no release time.

The university invited noted theologian James Gustafson to lead the seminars. Drawing on extensive experience in leading interdisciplinary exchange, he developed seminar themes such as "nature" and "responsibility." Beginning many months before the start of each seminar, he gathered suggestions for readings from each participant, read each volume, and selected the most appropriate materials. He then sequenced them to build a framework and required each participant to present a reading in a discipline other than her or his own. A critical response from an expert in the field and general discussion ensued. A graduate student recorder took notes and circulated session summaries.

Following the eight-year program, we investigated the nature of the participants' experiences and influences on various aspects of intellectual community and scholarship. Despite consistently high ratings by most participants, the leader urged the university to probe the program's long-term influences. His urging, along with the fact that over 90% of the program's participants remained at Emory, provided the impetus for the study.

### *Research Questions and Design*

Our previous work based on the study sample revealed that participants viewed the Luce Seminars as a successful framework that fostered fruitful discourse across disciplines over the eight-year duration of the program. In this analysis, we seek to gauge participant's perceptions of the breadth and depth of effects on the ways they think, work, and interact. We address the following questions:

- How did participants view the potential effects of the program on their attitudes and behaviors related to their scholarship and professional work? Based on the views of the participants, in what ways did the program affect their orientation toward their teaching, research, academic service, and career?
- How did participants view the potential effects of the program on their attitudes and behaviors related to intellectual and social interaction with their colleagues at the university? Based on the views of the participants, in what ways did the program affect their contact with faculty members from other disciplines and their orientation to their own disciplines and other disciplines?
- How did participants view the potential effects of the program on their attitudes and behaviors related to the university as the location for their scholarly and professional endeavors? Based on the views of the participants, in what ways did the program affect their view of and attachment to the university?

Because this seminar series occurred in one institution over a fixed period of time, we used a qualitative case study design. This design is particularly appropriate when there are no previous or clear indicators of programmatic success or when a better understanding of the characteristics of a unique program is sought (Merriam, 1998; Patton, 1990; Yin, 1994). We employed purposive-based criteria to select a sample reflecting the various disciplines, ranks, and experience of the population of participants across the eight-year span (Merriam, 1998; Patton, 1990). Twenty-nine of the 85 faculty members who took part in the Luce Seminars were invited to participate in the study; 25 (86%) accepted the invitation. The percentage of males (68%) and the percentage of arts and sciences faculty members (64%) were somewhat smaller in the sample compared to the study population in order to fully explore the variation of the faculty members by gender and school. The 9 (36%) professional school faculty members in the sample represented the schools of theology, law, nursing, medicine, and public health.[1]

Following Clark (1983) and Becher (1987), our typology of disciplinary groups includes the humanities, social and natural sciences (located in the undergraduate college and graduate school of arts and sciences), and the professional schools (medicine, public health, nursing, law, theology, and business). In discussing the findings, we refer to respondents according to their disciplinary groups and assigned gender pronouns randomly to help ensure confidentiality. When appropriate, natural science faculty members in both the arts and sciences and the professional schools are grouped together. At the time of participation, 84% of participants held tenure; 52% held the rank of professor; 40%, associate professor; and 8%, assistant professor.

We conducted semistructured, open-ended interviews with each participant in the sample. A prestructured yet flexible data-coding scheme derived from the literature review and the research questions allowed for evolving interpretation throughout the course of the data analysis (Miles & Huberman, 1994; Patton, 1990). We employed the qualitative research software program HyperRESEARCH to code the data and analyze the results.

We relied upon methods of triangulation to supplement participant interviews by analyzing selected information from the archival records of the program, conducting interviews with eight university leaders involved in the program's development, and holding structured conversations with the program's director. Multiple sources of evidence have been found to enhance validity and reliability in the application of qualitative research conclusions for understanding similar programs in similar contexts (Miles & Huberman, 1994; Patton, 1990; Pitman & Maxwell, 1992). Although qualitative research has limited application beyond its immediate and local context, reliance on multiple sources of evidence and data analysis sufficiently rich in detail enabled us to make tentative generalizations about participants' views of the influences of the program throughout the population (Crowson, 1988). To further ensure validity and reliability, the two principal researchers used member checks, peer review, and coding reliability checks (Merriam, 1998; Miles & Huberman, 1994; Patton, 1990).

Although our design resulted in rich data about perceptions of the effects of seminar participation on faculty scholarship and interaction, we suggest some caution about wholly attributing these influences to the program. Because resources were limited and the study was designed as an evaluative research tool after the program ended, it was not feasible to establish a comparison group in order to enhance the validity of the results (Campbell & Stanley, 1966). Due to the lack of a valid comparison group, we relied upon the self-reporting of a sophisticated group of program participants. We recognize that some of the design flaws typical of a one-shot case study may have confounded the reported influences with outside influences. Following Campbell and Stanley (1966), these include selection (uncontrolled bias within the sample) and maturation or history (changes undergone by the subjects or in the surrounding environment during the intervening time period). In addition, some participants may have overstated or understated the influences of program participation. In living with the constraints of applied evaluation research, we necessarily fall short of ideal experimental design principles.

## *Findings*

In an earlier article, we noted the positive intellectual and affective stimulation experienced by a large majority of the participants in the sample (Frost & Jean, 1999). Although participants had a few criticisms of the program's format and design, they described enjoying the intellectual challenge of interacting with colleagues across disciplines around topics of common concern. The findings below describe the observations of the program's director and participants about the characteristics and activities of the program and express the participants' views of the program's influences on scholarly activities, intellectual interaction across disciplines, and the university as the location for their scholarly endeavors. Table 1 contains a summary of these influences.

### *General Observations about the Characteristics of the Program*

According to many participants as well as the program director, James Gustafson, the format, form of leadership, choice of topics, and sequence of the discussions contributed to the strength of the program.

Most participants in the sample rated the topics highly. They described how the use of semester-long topics such as "responsibility," "nature," and "describing, explaining, evaluating" permitted in-depth discussions at key intersecting points of disciplinary perspectives. While a small minority of participants described the topics as "too broad" and "artificial," most participants noted a connection between the breadth of the topic and the depth of the learning. Noted one participant: "Having to do it in a very general way with that topic, 'on being human,' . . . turned out to include epistemology, how do we think, how do we learn, [and] how do we observe reality . . . it gave me an opportunity to discuss [the topic] in a fairly deep way."

Participants also gave high marks to the quality and effectiveness of the materials. These materials consisted of books initially selected by the participants to represent the perspectives of their disciplines related to the course topic. Examples of books used in some of the seminars that spanned disciplinary perspectives included William James' *The Varieties of Religious Experiences,* Reinhold Niehbur's *The Nature and Destiny of Man,* Don DeLillo's *White Noise,* and Ernest Mayr's *Toward a New Philosophy of Biology.* As the director noted, the books selected had to be "technical enough so that you didn't have to be a specialist in the field to understand them," yet sophisticated enough to avoid "any pap." Although a few felt that the books overly favored the "classics," many commented about the effective interweaving of the carefully selected materials. A health scientist, for example, remarked about "the wonderful collection of books that . . . stimulated you to know more . . . and to be able to relate it to what was meaningful to your own discipline and your own philosophy . . . was very meaningful to me." (For more detailed examples of topics and materials, see appendix A).

Participants seemed to describe how the format, the investment of university resources, and the skillful leadership fostered a stimulating environment for meaningful conversation. For example, some noted that their release from teaching played a "critical" role for creating "space and incentive" and 'intellectual seriousness." Some noted that providing a "buffer" of time helped them digest the materials from the varied disciplines. As a social scientist commented, this time buffer permitted participants to "stay focused on this [and] on nothing else [to] improve your thinking . . . to another level of scholarship." Some expressed appreciation of the university's investment in the leadership and resources necessary to support the program: "It was intense because everyone seemed to bring their whole being" and people appreciated the opportunity to interact with colleagues "purely for intellectual gratification." A social scientist felt that the seminars sent a message to faculty that "interdisciplinary conversation, discussion without an immediate payoff, is important for the sheer experience of it . . . precisely because it need not be instrumental." As one natural scientist from the professional schools noted, it "felt like ideas were important, like we always thought they should be, ideas for their own sake . . . it was my idealized view of what university life was truly all about, but I'd never experienced." The seminar enabled a humanities participant "to think without distraction, which is a rare thing for scholars these days." As a natural scientist observed: "It was set up so that people were impressed with the seriousness of purpose. Without that, it wouldn't have worked at all."

Although some participants wished for stronger guidance in the discussions, many described how the leader skillfully used timely, "open-ended" questions to stimulate discussions without "foreclosing them." Others referred to the style of "gentle guidance" or "back of the room teaching" that established a dignified atmosphere for fostering the "vulnerability" and "mutual respect" needed to "look deeply" into the materials without getting caught up in ideological posturing: "[The leader] kept [the discussions] on track without inserting himself too much." As the director noted: "The basic style was very few monologues on my part . . . I was the director of the seminar, rather than the teacher."

In general, participants commented that the structure of the discussions played an important role in generating substantive connections at appropriate junctures of disciplinary perspectives. Many seemed to enjoy the opportunity to relate the various disciplinary perspectives to the semester-long themes. Others stressed the importance of the "uncanny" pairing of disciplinary perspectives in class discussions and assignments. The program director described how he would read over 30 books proposed by the participants signed up for an upcoming seminar to determine "a sequence of them" where there would be a "block of books . . . related to each other in a significant way" or where "the sequence would be almost a synthesis and then antithesis of books." The director as well as many participants described the effectiveness of assigning the initial presentation of a paper about a reading to a respondent who was not from the field of the book, followed by a response from someone who was in the field of the book. Stated a humanities participant: "We would discuss works that were actually outside the disciplines, but with a certain . . . affinity. . . . Jim Gustafson did a wonderful job of pairing [the] work and author of the presentation." This "involved putting aside the normal premises . . . and trying to enter into a different kind of inquiry." Another humanities participant described how relying upon non-experts opened up discussion: "You were [first] going to hear your colleagues' view . . . on a text that person perhaps knew no better than you did. . . . It forced people to break down these 'perspectival' barriers that come from their . . . 'professional deformation.' " Noted the director, the appropriate sequencing of the materials and presentations helped avoid having a "book talk show" that fails to "come to grips with the substance of the material under discussion." The description of a health scientist captures the results of the intentioned sequencing:

> It was interesting to do the critique, . . . have the historian do a critique of my critique, and then have everybody else engage in the discussion. What it allowed all of us to do . . . was to value the acquisition of knowledge from other sources, other disciplines, [and] to appreciate our own knowledge base within the context of knowledge from other disciplines.

### *Influences on Scholarly and Professional Activities*

Almost all of the study participants reported important influences on their scholarly and professional activities in one or more of the areas of teaching, research, service, or career direction. In one striking example, one senior social sciences faculty member viewed the seminar as "a benchmark in my intellectual development" and as a result, became "a better teacher, a better professor, . . . a better citizen of the community."

*Teaching*. Eighty-four percent of participants indicated that participation altered their teaching, sometimes in significant ways. We identified five primary areas of teaching influence: motivation, style or technique, course design or content, involvement in interdisciplinary modes, and student empathy. Regarding motivation, some reported developing the confidence to try new things with their teaching. Other participants talked about the inspiration to risk developing new structures modeled after the "Socratic" method of discussing and defining scholarly concepts. After her seminar, one health scientist began meeting with faculty in other disciplines to propose and design new courses. Without the seminar, she said "I wouldn't have had the confidence or courage [for] . . . taking the initiative, having the vision." One professional school participant credited her seminar experience with "encouraging me to go ahead and . . . risk" bringing comparative literature into courses.

Fifty-six percent of participants altered the design or content of subsequent courses, usually reflecting subjects or readings from outside disciplines. For example, one social scientist used more literature in her courses, one humanities participant borrowed from cultural anthropology for teaching literature classes, and several others reported using examples from seminar discussions in their classes. One humanities participant cited a "significant effect on my teaching," since "I talk a lot in my

TABLE 1

Reported Effects of the Luce Seminars on Faculty Scholarship and Interaction

| Activity or Orientation | Effects |
|---|---|
| *Scholarly and Professional Activities* | |
| Teaching | Motivation to try new approaches; Altered course design or content; Altered teaching style or technique; Involvement in team-teaching or development of interdisciplinary courses; New empathy for student perspectives from other disciplines |
| Research | Expansion of content/scope; Supplementing disciplinary methods with those from other disciplines; Increased motivation to try new research directions |
| Quality of scholarly thought | Development of new ways of questioning or defining scholarly problems; Discovering or rekindling connections between own research and fundamental scholarly issues across disciplines |
| Career orientation/academic service | Sense of renewed dedication; Expanded imagination about paths for service to the community or university |
| *Intellectual Interaction Across Disciplines* | |
| Orientation toward own discipline | Increased understanding of own discipline relative to other disciplines; Increased appreciation for or commitment to own disciplinary endeavors |
| Orientation toward other disciplines | Increased understanding of other disciplinary perspectives; Increased appreciation for other disciplinary perspectives; |
| Contact with faculty from other disciplines | Increased informal intellectual and social interaction with faculty across disciplines; Increased participation in formal programs of interdisciplinary programs |
| *Orientation to the University as the Location for Scholarly Endeavors* | Enhanced feelings of attachment to the university; Enhanced sense of connection with the university as a community |

classes now about the theory of evolution, about various things that I learned in the seminar." One professional school participant became more interested in "broader human questions" which have "shown up in my courses as well."

About half of the participants altered their teaching style or technique. Some emulated the leader's style, using "deep passage analysis" and asking "open" instead of "closed" questions. In a new seminar, one social scientist focused on exploring the meanings and ramifications of one central topic: "It is a Luce Seminar . . . I would not be doing it, the students would not have had the experience, were it not for that."

Forty percent of the participants credited their seminar experiences for their subsequent team-teaching or interdisciplinary course development. One humanities participant subsequently co-taught with a seminar member who was a social scientist, noting that the feeling that these were "possible to do" was "influenced by the seminar." A junior humanities participant credited the seminar experience for feeling "confident enough" to develop "a kind of off-shoot from the Luce Seminar" that "became a prototype" for introductory graduate seminars in her department. One health scientist mentioned how the seminar led her to propose "that we apply for teaching funds to do an interdisciplinary health care ethics course." Through developing the "feeling that it was possible to do" in the seminar, one senior natural scientist taught a course blending science and literature with a faculty member in the humanities.

Several participants reported developing a new empathy for how the university's array of disciplines might appear bewildering to undergraduate students. For them, enhanced student empathy proved useful for student advisement or for understanding how students' disciplinary orientations might shape their questions and approaches in relation to class discussions. "I found myself . . . thinking about what . . . the university must look like to an undergraduate [who tries] to put together a liberal arts education," noted one humanities participant.

*Research.* Slightly over half of the participants we interviewed cited some influences on their research. Noting that the seminar pushed her to change the way she conducted research, a senior faculty member in a professional school remarked: "Six years ago...I began to wonder, 'what . . . difference does it make what [a] small group of people in another century, another country, were saying about issues?' . . . The seminar infused me with a new sense of how I could answer the question 'so what' in a way that was satisfying."

We identified three primary areas of research influences: method, content or activities, and motivation. Twenty percent of the participants described influences on their research methods, such as incorporating contextual narratives into scientific research and supplementing literary studies with history for one humanities participant, and cultural anthropology and history for another. One health scientist learned to weave narrative techniques into articles published in scientific journals: "It's that kind of weaving across the discipline that I . . . honed in the seminar."

About half of the participants subsequently expanded the content or activities of their research. Some added new questions or topics evolving out of their seminar's materials to their research agenda or expanded the scope of their research to address wider issues. Professional school scientists seemed particularly impressed with what they learned from the humanities. Most of the health scientists, for example, supplemented their primary research areas with connections to ethical or philosophical issues. One health scientist used her experience to "retool myself in the area of research ethics" to apply for grants from the National Institutes of Health. Another health scientist received the "grounding" to "probe more deeply" into the relationship between learning and scientific knowledge. Similarly, several humanities participants expanded the scope of their research agendas with questions and information based on the social sciences. One incorporated elements of cognitive psychology into literary analysis; another discovered the assumptions of social science theory as a topic for research that produced publications; and two others enhanced their literary research with cultural and historical analyses. At the time of this study, six faculty members noted publications that had evolved out of their seminar experience.

Finally, about one third of the participants reported increased motivation for their scholarly work. Many of these found added affirmation for the value of their own interdisciplinary approaches or stimulation to take off in new directions. For example, one natural scientist gained the confidence to "try a bit of a different direction with my science" by connecting it with outside disciplines. For one humanities participant the seminar provided the "impetus" and "encouragement" to use some aspects of history and anthropology in his literary research. One health scientist would not have been able to emphasize philosophic issues in his writing without being "propelled" by the "intellectual vigor that came out of the seminars."

*Quality of scholarly thought.* Fifty-six percent of participants credited the seminar for enhancing the quality of their scholarly thought and for helping them develop new ways of questioning or defining scholarly problems. One social scientist, for example, viewed his participation as a "mind-stretching experience" that pushed him to "always think about contrasting terms" in order to clarify an intellectual problem. A professional school participant improved his ability to take an important concept such as "responsibility" and trace its social and cultural origins. For him, the method of breaking down "what I thought was intuitively obvious" most "affected how I think." As a senior faculty member in the health sciences noted: "We were always talking about scholarship. The question is where does it begin? It begins, of course, with a very good question, and the way I learned from participation in the seminar was not so much the answers that were given, but the questions . . . helped you to have greater clarity."

Some participants discovered or rekindled ways of making connections between their own research and broad or fundamental issues. For example, one professional school participant developed "a more organized way of going about" ways of thinking and researching the "more fundamental questions about who we are as human beings," rather than always remaining focused on "the specifics and details." Another professional school participant was "stimulated to ask broader questions" such as "what does it mean to be a human being in the end of the twentieth century?" Similarly, one humanities participant appreciated the opportunity to revive the "liberal education" he had lost, which had resulted from reading "more and more intensely in an increasingly narrow area" circumscribed by his discipline.

*Career orientation and academic service.* Forty percent of the participants seemed to experience a sense of renewal toward their careers or academic service. In the words of one health scientist, the seminars "challenged us to re-engage ourselves and recommit ourselves to the academy. . . . It was the reason why we became professors and came to the university and I think it re-ignited that flame." Similarly, another senior health sciences participant noted: "I think [the seminar] gave me at mid-career . . . a renewed enthusiasm . . . and it stimulated . . . my moral imagination greatly. . . . I had the motivation and the courage to go out and seek opportunities to create that kind of a dialogue."

The influences on career orientation and academic service often varied according to level of seniority or career stage and disciplinary group. Senior faculty participants tended to credit the seminar experience for stimulating new career directions, while junior faculty participants described gaining increased confidence or an enhanced sense of integration into academic life at the university. Some senior faculty participants, for example, talked about experiencing a "renewal" toward their scholarship, feeling "reintegrated" into the intellectual life of the university, or becoming "inspired" to work harder. One junior faculty participant indicated that the leader of the seminar provided a positive role model of scholarship: "It was just a very good example for me as a relatively young person in this profession of something to which I should be aspiring."

For some participants, the seminar experience expanded their imagination about service to the community or the university. Natural scientists in the professional schools, in particular, seemed to feel more strongly about bringing together disciplinary perspectives for academic service. For example, one senior health scientist was surprised "to gain such a powerful renewed sense of the responsibility" for applying academic knowledge to community service. In addition, some health scientists increased their desire or confidence to draw upon resources from other disciplines to enhance the ways they study and serve their clients in the community. One health scientist stressed that the seminar "prepared him" more than any previous experience for participating in a multi-disciplinary program at the university that supports educational opportunities in the community. Another health scientist stressed the influence of her seminar on developing "expansive thinking" that enabled her to better grasp the role of her department in relation to the wider context of the university, the "why we are versus what we do."

### *Intellectual Interaction across Disciplines*

A large majority credited the seminar with altering their attitudes and feelings about their own disciplines and other disciplines. These altered views translated into more frequent and valuable contact with colleagues both in the seminars and across the university. One senior faculty member in the social sciences captured this change: "What I came away with was an appreciation for what [colleagues from other disciplines] do [and] how they think. . . . The content is different, but there are the same kinds of struggles going on, the same kinds of questions. . . . There's a friendly face in each one of those places for me now."

Characterizing their experience as somewhat negative, three participants appeared to gain little additional understanding or appreciation of their own disciplines or of disciplines outside of their own. They had had considerable previous exposure to interdisciplinary contact and seemed to feel that exemplary representation of hands-on disciplinary activities had been lacking in their particular seminars. In contrast to many others, these participants felt that the semester-long topics were "too broad" or "artificial" to foster meaningful interdisciplinary conversation. Of the three, two were in the humanities and one in the social sciences. As one humanities participant wondered: "[The seminar] brought a lot of people together that wouldn't have gotten together otherwise, . . . but I'm not sure to what end . . . [it] showed me how . . . artificial interdisciplinarity . . . can't take the place [of interdisciplinarity] . . . organically developed out of [scholarly] work and out of . . . systems of value." Similarly, one social scientist complained: "[The leader] made it very clear that we would not talk about contemporary issues, our role as faculty, [or] our responsibilities to students. We would only talk about intellectual, academic issues and that . . . felt profoundly uncomfortable to me. . . . So nothing . . . carried over into my work."

*Orientations toward participants' own disciplines.* Fourteen (56%) increased their understanding of the nature of their disciplines relative to other disciplines. For example, one humanities participant gained a new understanding of the foundations of her discipline: "It's so basic [but] it's really hard . . . to have a sense of your field as a field rather than simply a state of nature, and it's like travel that way, just getting some distance and anthropological perspective on how your own field is organized." One social scientist saw how the scientific method provides a foundation for her discipline compared to the humanities, and one humanities participant saw how his discipline encompasses the richness of the "whole man" relative to the natural sciences and professional schools. Notably, some health scientists saw more clearly both the rigor and practical value of their disciplines while commenting on their need to expand their knowledge base to incorporate insights from other disciplinary groups.

Over three-quarters of the participants developed a greater appreciation or commitment toward their disciplinary endeavors. For example, several health scientists gained a deeper appreciation of the applied nature of their disciplines. One noted, "We have to have answers and we have to make decisions in real time that impact on the lives of people." Two other health scientists seemed "reaffirmed" about the importance of their discipline due to the respect accorded them in the seminar, despite fearing a lack of acceptance because of their lack of knowledge of the humanities. Some humanities participants used phrases like "richness," "interpretive," and "agility" in relation to their disciplinary orientations relative to the "empirical" social and natural sciences: "I was affirmed in my original assumptions about why I do this. I'm much more at home [with the] . . . range of interpretive possibilities than relying on . . . empiricism." Citing the wide range of content in social science studies, several of the social scientists gained appreciation of how their disciplines provide a "distinctive contribution" through their unique window on interdisciplinary knowledge.

*Orientations toward other disciplines.* Even if their understanding remained incomplete, many participants gained deeper respect or appreciation for the subtleties and complexity of other disciplines. Nineteen faculty (76%) increased their insights into the approaches of various disciplines, while 21 (84%) gained a greater respect or appreciation for other disciplines, even as some remained critical or bewildered.

In particular, natural scientists and professional school participants commented extensively about their increased understanding and appreciation of the methods and approaches of other disciplines. As one senior faculty member in the professional schools noted: "I finally began . . . to understand what it was to be a [professor in my own discipline] as opposed to an English professor or a German professor . . . and that . . . it was legitimate . . . to have a paper that was evocative as opposed to something that was analytically grounded." A senior health scientist grasped the importance of the "abstract disciplines" through the seminar's focus on the "larger questions that we often get more in . . . little conversations at night among a bunch of undergraduates." He learned that these "larger questions" exist at a "different level than we're accustomed to in . . . our search for knowledge in science." As one natural scientist explained: "[The seminar] has made me aware of . . . how many different versions there are of truth. It's very easy, for the physical sciences especially, to think we have a corner on truth. . . . We're all part of the university."

The distances between the approaches of disciplines and disciplinary groups struck some participants. For example, one humanities faculty member commented that the professional schools "seemed to be on a different planet," orienting their teaching toward professional goals for the students: "They think I'm frivolously wasting everybody's time, and I think they're just doing their bit churning out the next robot." Remarked one social scientist, "When you recruit from the medical school or from public health, to a lesser extent the law school, . . . you are dealing with people who are operating under a different institutional context" who cannot break free of the pressures of bringing in grant funding.

Others saw more clearly some disciplinary differences between approaches to knowledge and evidence. For example, a natural scientist in the professional schools was surprised at the extent to which an "epistemological chasm" emerged between the humanists and the scientists in the seminar between the "scientific view" and the "so-called social construction of knowledge." Another natural scientist learned that "humanists put the word above all else" and "passionately and vividly . . . defend their opinion about what was on the page," whereas scientists "don't take words with that same depth." From another perspective, one humanities participant saw more clearly the difference between the "critical" approaches across the humanities and the "empiricism" of the natural and social sciences in relation to evidence, truth, and fiction.

While some participants talked about how the seminar revealed the ultimate difficulty of interdisciplinary discourse, others believed that the discourse illuminated common concerns. For example, a natural scientist's desire for further interaction was kindled through learning that "people from other disciplines are also of my kind," as discourse in the seminar seemed to break down "vertical walls" between disciplines. A humanities participant acknowledged this tension, describing "the value of trying to communicate across disciplinary lines . . . that cross school lines at some point . . . with a spirit of possibility." However, she believed that, ultimately, the languages of the disciplines were "incommensurate" and "were just at the end of the day at odds." A social scientist saw a "good model for constructive exchange of ideas among faculty" as it "reinforced my sense that the faculty . . . need more of these kind of events."

*Contact with faculty from other disciplines*. For ninety-two percent of the participants, the intellectual interaction and social friendships that developed continued with lunches, conversations, reading groups, and more formal research projects or co-teaching. One main benefit for one natural scientist was "making connections, to some extent friendly, and to some extent professional, that have paid off in my teaching and my research." Similarly, one health scientist described the benefits from interacting with colleagues from the natural and social sciences: "The significant thing for me was that I am in contact with those colleagues. . . . We've done other projects together, and that would not have happened were it nor for the seminar." One junior faculty participant in the humanities noted, "We just don't get that many opportunities to talk across disciplines, and . . . being able to identify people . . . working in the same areas . . . is very important."

Some participants described increased levels of confidence for reaching out to faculty members outside their own disciplines. One senior professional school participant was more willing "to relate to them . . . and use their information, . . . making Emory a better place for me professionally." The seminar gave one social scientist "a dozen people, bang!, and out of those relationships have come other relationships and they have ramified in different ways." One junior humanities participant gained a "portable understanding" of ways to initiate a cross-disciplinary curricular initiative within the arts and sciences. One senior health scientist noted how the experience deepened "my affection, my appreciation for my colleagues" and credited the seminar for feeling "more comfortable in dialoguing" with faculty from other disciplines. In addition, about one third of participants cited the influences on their subsequent participation in other interdisciplinary "add-on" seminars, study groups, lectures, and multi-disciplinary programs supported by the university.

### *The University as the Location for Scholarly Endeavors*

Eighty percent of the participants reported enhanced feelings of attachment to or integration with the university as the location for their scholarly and professional endeavors. For example, one senior humanities participant stated that the seminar "strengthened my loyalty to Emory [because] . . . a school that believes sufficiently in the intellectual exchange [of its faculty]. . . gets high marks in my book." Another senior humanities participant felt that the university's investment sent a "signal . . . that the university was interested in my own intellectual development...above and beyond my work in my discipline." Similarly, for a senior professional school participant, the seminar contrasted to the university as "big business." "[It] was a signal, hey, somebody in the administration building is interested in the quality of thinking and leadership of its faculty, interested in matters beyond attracting students, providing courses, and making sure this faculty is publishing [and] visible."

Some participants described an enhanced sense of belonging to the university. As one senior health sciences participant revealed: "I was in Timbuktu in terms of relationships with the university. This was my first . . . real exposure to other faculty and to the life of the university. . . . As I got more acquainted with the larger community, it has filled in the void." Another health scientist stated, "I know people in the university . . . in a way that I didn't know, even though I had worked here for years." One senior social scientist remarked, "I like to think that [now] there's some sort of small college . . . hidden within the walls of the university."

In particular, junior faculty, professional school and other participants who felt some physical or intellectual isolation from the rest of the university seemed to experience an enhanced sense of connection with the university. For example, one junior faculty participant reported "feeling as though there is a . . . larger intellectual community that you really are a part of, rather than you just being a member of your own department." A senior humanities participant who had described his physical location as "isolated" connected with the "wholeness" of the academic enterprise. For him, the "university exists only to the extent to which we speak to each other," while "most of our days consist of going to the office, going to class . . . [and then] going home." The seminar helped one senior health scientist overcome "a kind of insulation to the intellectual life of the university" that exists, she said, in the professional schools. For another senior professional school participant, the experience was the only "formal means" for providing "conversation and exchanges on a professional level about knowledge" he had encountered at the university. The seminar helped him realize an ideal of scholarly life: "Being at the university club, drinking a shot of brandy, and discussing philosophy or history or something like that with other faculty members."

For twenty percent of the participants, the experience had little or no influence on their attachment to the university. Two participants who generally disliked their seminar experiences noted that they sometimes go out of their way to avoid certain members of their seminar class. Although some senior participants in the professional disciplines and in the natural sciences described enhanced ties to the university community, some senior faculty participants who had described a long history of faculty interaction across the university noted minimal impact from seminar participation on their ties to the university. For one such senior humanities participant, the seminar experience did not lead to "working relations with other faculty members." It also did not influence his ties to the university, even though he had "hoped that it would."

### *Discussion*

The participants in our sample described some broad and deep effects from their seminar experiences on their scholarship and interaction with faculty across disciplines. The seminar series stimulated many participants' imaginations about ways to enhance their teaching, research, and service by spanning disciplinary boundaries. Moreover, positive feelings often accompanied these shifts in intellectual perspectives, as participants reported becoming more comfortable in interacting or engaging in scholarly activities with colleagues from other disciplines. By increasing understanding and appreciation for their colleagues across disciplines, the seminars provided a window into the multifaceted dimensions of the university, enabling many participants to peer beyond the usual confines of their narrow perspectives "into the university at large." The seminar experience helped mitigate a sense of intellectual or physical isolation, especially for participants from the natural sciences and professional schools. That some influences of the program varied by seniority (e.g., junior faculty felt more integrated, while senior faculty experienced enhanced appreciation and new possibilities for career directions) is supported by previous research about the relationship between faculty life cycle and programs designed to enhance scholarship and job satisfaction (Baldwin, 1990; Centra, 1989).

What factors account for the powerful effects of the Luce Seminars on scholarship and interaction reported by the participants? Three distinct characteristics of the program seem linked to some intellectual, affective, or symbolic dimensions within faculty culture at the university. First, the program seemed to expand the *intellectual horizons* of its participants. The seminars provided a model for interdisciplinary discourse that encouraged exploration of the breadth and depth of different approaches to knowledge and truth. This process involved defining concepts related to profound topics of common concern and immersion into the assumptions and vocabularies of disciplinary perspectives. To many of the participants, the "more organized way" that various disciplinary perspectives linked together at appropriate junctures to enhance exploring the "more fundamental questions" seemed to particularly distinguish the Luce Seminars from other programs of exchange across disciplines. The provision of release time from teaching and the semester-long duration of the courses created an intellectual "buffer" that made possible the sustained intellectual effort and preparation needed to reap the positive benefits of this type of intense and integrated approach to knowledge exploration. As a result, many participants reported developing a new "quality of mind" that permitted them to stretch deeper and wider in conceptualizing intellectual problems and exploring solutions through their teaching, research, and service. However, a few participants who preferred more practical or "organic" seminar discourse tied to specific research projects did not seem to experience any qualitative shift in their intellectual development. This finding seems consistent with Armstong's (1980) observation about the importance of attending to the variation of personal learning styles in designing interdisciplinary faculty learning programs.

Second, the program appeared to build a reservoir of *good will* that inspired participants to engage in unfamiliar and difficult discourse. In the view of many participants, the program established an atmosphere for discussion that lowered ego investment and heightened comfort for exploring a bewildering array of disciplinary vocabularies, methods, and ideas. By receiving "gentle guidance" with well-timed, "open-ended" questions designed to lower "ideological posturing" and steer discussion along appropriate paths of interdisciplinary confluence, participants seemed to embrace a "model" for learning across disciplines that they could apply to their own scholarship. Our data provide some evidence to support Becher's (1994) contention that shared understanding across disciplines requires reducing strong negative stereotypes and feelings of intolerance. Many participants also reported experiencing great enjoyment and satisfaction from exploring ideas related to the "broader view" and articulating the role of their own disciplines in this quest. As a result, these participants reported experiencing increased appreciation for and interaction with colleagues from other disciplines as they recognized how working with people, ideas, or methods from other disciplinary perspectives might enhance their own scholarship. These affective factors contributed to developing sufficient comfort, motivation or courage to subsequently "risk" participation in interdisciplinary teaching, research, and programmatic activities that pushed aside the usual disciplinary boundaries.

Third, the program seemed to tap into some *symbolic dimensions* of both institutional and professional culture. By providing the structure and "intellectual space" for rich, local interaction across disciplines, the university's investment symbolized support for the intellectual growth of its faculty unfettered by "instrumental" expectation from both their departments and the university. For many participants, descriptive phrases such as "ideas for their own sake," "purely for intellectual gratification," "discussion without an immediate payoff," and an "older scholarly ideal of what it means to be a university" revealed the seminar as a symbolic touchstone for participation in an overarching "community of scholars." Thus, as Bland and Schmitz (1990) noted, faculty programs that tie into symbolic academic values can more effectively enhance scholarly vitality.

Taken together, these symbolic dimensions of institutional and professional culture helped extend a desire for the type of "familiar intercourse" described by Newman (1875) in the nineteenth century and later extolled by Hutchins (1968). Not only did many participants describe an opportunity to explore what Hutchins (1968) called "truth whole," they also described experiencing a renewed understanding and commitment toward the work of their own disciplines. This suggests that a faculty interdisciplinary program imbued with intellectual purpose, affective support, and symbolic power can potentially form some level of cultural coherence that bridges the disparate spheres surrounding the specialization and isolation of knowledge fields (Damrosch, 1995; Dill, 1991; Kerr, 1982). Such cultural coherence, in turn, can help lay a foundation for the type of intellectual exchange across disciplines many claim as necessary to forge stronger ties between teaching and research and to solve large-scale societal problems (Bellah, 1996; Boyer, 1990, 1997; Damrosch, 1995).

Despite the many positive effects reported by the participants on their scholarship, we caution against inflated expectations from seamless faculty interaction across disciplines. Although fruitful interaction seemed to have occurred in this case, powerful limits to such interaction persist. While many participants linked positive thoughts and feelings about colleagues from other disciplines to the seminar, some believed that ultimately the disciplines are "incommensurate." As some scholars have noted, the culture surrounding disciplinary specialization dominates the other spheres of faculty culture (Austin, 1990; Clark, 1983; Dill, 1991). Despite the value of the program for enhancing interdisciplinary understanding and good will, the participants we interviewed indicated that certain disciplinary perspectives that intensely defend what passes for valid and useful knowledge hold considerable sway in circumscribing faculty interaction (Becher, 1987, 1994, 1995). In addition, we have observed how preferences for concrete, current, or hands-on research among some faculty may render programs of general, theme-based interdisciplinary discourse less potent for some intellectual styles and orientations.

Despite the high marks for lowering the clashing of egos and ideologies, we found some potential evidence supporting Armstrong's (1980) observation that interdisciplinary dialogue often produces high levels of anxiety and defensiveness. Although the seminars seemed to help faculty members soften negative stereotypes, some persistent boundaries hinder the potential for valuable intellectual exchange. Two examples include the cultural fault lines between the empirical sciences and the humanities and between the professional and non-professional groups of disciplines.

The first fault line divides what Becher (1987, 1995) called the realist approach to knowledge from the relativist approach. Participants from the natural sciences and social sciences reported putting greater stock in the validity of empirical observation and the ability to draw valid conclusions of general applicability from those observations. Those from the humanities and some from the social sciences reported viewing perceptions of knowledge as subject to the vagaries of structural, historical, and cultural contexts. While we did not explore the subtleties among disciplinary perspectives, we did observe that this epistemological boundary held for many participants. If not properly diffused, such boundaries can generate considerable "bewilderment," if not suspicion, in interdisciplinary discourse and reduce its potential benefits.

The second fault line concerns the differing styles and missions of the professional and non-professional disciplines (Clark, 1983, 1987; Halpern, 1987). Some arts and sciences participants seemed to disdain the practical and vocational mission of professional school faculty members, perceived by some as churning out "the next robot." Even after their experience, some believed that interdisciplinary discourse should be limited to arts and sciences faculty who presumably search for common principles of knowledge unburdened by the need to gather external funding or produce graduates to fill certain vocational needs. Ironically, the desire to participate in the large academic questions as part of a community of scholars emerged as a strong theme among professional school participants, who appeared to delight in opportunities to both engage in theoretical and abstract intellectual discourse and to signal their capability to successfully participate in such discourse. Our data were consistent with Bok's (1986) observation that professional school faculty can feel isolated from the "true scholarship" of the arts and sciences and that, within academic culture, knowledge that is theoretical, abstract, or valuable for its own sake remains the dominant model. In addition, the particularly enthusiastic response from professional school participants toward applying what they learned in the Luce Seminars to their career and service activities was most likely due to their focus on real-time, real-world research problems and the vocational nature of their teaching mission (Halpern, 1987).

Becher's (1995) distinction between the internal and external status hierarchy among disciplines may help account for the tensions between arts and sciences and professional school faculty. While the "non-instrumental" and theoretical knowledge fields among the arts and sciences may rank higher in the internal intellectual status hierarchy of academia, the professional school disciplines seem to outrank them in the external hierarchy of perceptions outside of academia. Among the participants we interviewed, we observed a disdain indicated by some arts and sciences faculty members for the influences of external constituencies on the professional school mission. As some have noted, professional schools increasingly gain external reward and recognition, while some in the arts and sciences perceive themselves increasingly under threat for external justification (Bender, 1998; Geiger, 1986, 1993). We also observed some evidence of envy within professional school disciplines for greater internal intellectual acceptance within the academy. Perhaps some professional school faculty members sense an exclusionary attitude toward them from faculty within the arts and sciences.

### *Lessons for Leaders and Planners*

Although cultures and circumstances across institutions may vary considerably, our findings suggest that it is possible to establish substantive discourse across disciplines. The seminar series we studied seemed to succeed in the view of many of the participants because planners attended to four important areas: structure, participation, ethos, and support. Here we address each area briefly and suggest some practical lessons for those seeking to establish the type interaction we have described.

Concerning structure, design support for sustained discourse of sufficient level of depth and breadth of learning. Provide time for substantive immersion into different disciplinary approaches and vocabularies, and arrange topics and materials into a framework that encourages related disciplinary perspectives to intersect.

Concerning the participants, secure a respected scholarly leader familiar with a wide range of scholarship across disciplines and choose participants to get an inclusive mix of disciplinary views. Ideal leadership permits a vibrant mix of faculty representing various disciplinary approaches to knowledge and evidence (such as realist versus relativist, for example) to engage in fruitful and enjoyable debate.

Concerning ethos, create an atmosphere that encourages participants to tackle difficult and unfamiliar materials outside their areas of expertise. The right atmosphere avoids an emphasis on ideological posturing and reduces apprehension so that participants feel free to grapple with the limitations of their own disciplinary perspectives. Whenever possible, designers should also attend to the preferred learning styles of participants. For example, examining scholarly issues that emerge out of concrete or applied scientific and societal problems may inspire some faculty, while other faculty prefer to engage in theoretical or abstract discussions and analyses.

Concerning support, provide resources that signal intellectual seriousness and interest in the academic development of the participants. In addition to budgetary support, create an intellectual sanctuary for exploring ideas without additional expectation from the university while providing sufficient release time from other professional duties. Consider important ways to include participants in the selection of course readings and activities, particularly early on in the process.

Establishing the Luce Seminars involved a substantial investment of time and resources on the part of this university. This study has shown that, when constructed with attention to the right ingredients, a program of faculty interaction across disciplines can pay subsequent dividends far beyond providing a positive and enjoyable experience for participants. These dividends include enhancing participants' scholarly work (teaching, research, and service), broadening their collegial interaction across disciplines, and strengthening their orientation to their university as the location for their scholarly endeavors. Believing that the real gains in both the quality and quantity of scholarly work have justified the investment of time and other resources, leaders and planners at Emory now use the program as a model for other seminars.

## *Conclusion*

To meet competing demands for specialized knowledge and for boundary-spanning solutions to real world problems, universities seek ways to connect disparate fields of knowledge while deepening scholarly expertise. We have shown how an experimental framework for serious discourse across disciplines represents one potential solution. In the view of many participants, the Luce Seminars helped build a more coherent intellectual community while enhancing the quality of their subsequent scholarship.

The profound effects of the seminar series, as reported by many participants, seemed to result from a confluence of distinct intellectual, affective, and symbolic characteristics. Participants seemed to view the seminars both as an intellectual model of interdisciplinary discourse and as a sign of the university's commitment to provide a sanctuary for the exploration of knowledge apart from the expected or routine functions of the departments. Such an opportunity helped respect, understanding, and appreciation across disciplines to flourish.

For many participants, the program also seemed to tap into powerful affective and symbolic aspects of faculty culture that, in turn, motivated faculty to engage in new forms of scholarship. Our study revealed the importance of cultivating the affective and symbolic as well as the intellectual dimensions of faculty culture in supporting scholarship. Creating genuine intellectual community seems to involve more than providing opportunities for faculty interaction. It involves a scholar's feelings and perceptions related to the various disciplinary perspectives of colleagues and the ways that these perspectives appear to fit into the purpose of scholarly inquiry, as well as the perceived relationship between faculty members and their college or university.

Several questions related to the potential influences of similar programs at Emory and other research universities emerge from this study. First, the participants we interviewed observed that the program's profound effect on their attitudes and behaviors related to intellectual exchange and scholarly vitality continued subsequent to their participation. Over the long run, how lasting might these influences be? What institutional and professional factors might support or erode the program's influence over time? What remedies might universities employ to extend such influence?

Second, despite the general success of the program in bridging the distances between disciplines, many participants observed some powerful and persistent cultural fault lines. These fault lines revolve around two tensions regarding modes of scholarly inquiry. One tension concerns the realist or empirical approach characteristic of the natural and some social sciences and the relativist or social-construction approach found in some humanities and social sciences. The other tension involves the "practical" or applied nature of professional school scholarship and the theoretical or "pure" nature of scholarship often found in the arts and sciences. To what extent must these cultural fault lines remain as barriers to intellectual interaction and scholarship across disciplines? What factors contribute to the internal and external status hierarchies among disciplines and disciplinary groups, and what factors might mitigate them?

Third, although the program seemed to connect distinct elements of faculty cultures for many participants, new disciplines and subdisciplines continue to multiply at this university. Assuming that other universities share this condition, to what extent can institutions support a coherent intellectual community and at the same time advance disciplinary expertise? What are the relative advantages and disadvantages of each?

Our case study analysis has revealed some ways to better understand the potential effects of programs aimed at enhancing scholarly interaction across disciplines, particularly for research universities. However, our results pertain to one subset of faculty at one university. The possibility that some faculty members may have entered the program with a predisposition for interdisciplinary intellectual exchange suggests the need for a wider range of data. Future research should investigate where and how faculty members seek to locate intellectual community across departments of a school, schools of a university, and universities in the United States and other countries. Because such research addresses the ways structural and cultural factors shape different types of intellectual interaction across disciplines, it could improve scholarly inquiry.

## *Notes*

Due to the incomplete response rate, the business school was not represented in the sample.

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APPENDIX A

Examples of Luce Seminar Topics and Materials

Topic: *Describing, Explaining, Valuing*

Books: *Freedom, V. I.* (Orlando Patterson); *A Sport of Nature* (Nadine Gordimer): *The World within the World* (John Barrow), *Chaos Bound* (N. Katherine Hayles); *Patterns of Intention* (Michael Baxandall); *Music, the Arts, and Ideas* (Leonard B. Meyer); *Poetics* (Aristotle); *The Case of Wagner* (Friedrich Nietzsche); *Consciousness Explained* (Dennis C. Dennett); *The Concept of Law* (H. L. A. Hart); *The Science Question in Feminism* (Sandra Harding); *Varieties of Religious Experience* (William James); *Eleven Plays* (W. B. Yeats).

Topic: *Responsibility*

Books: *And the Band Played On* (Randy Shilts); *Ethics of an Artificial Person* (Elizabeth Wolgast); *Beloved* (Toni Morrison); *The Responsible Self* (H. Richard Niebuhr); *Form and Substance in Anglo-American Law* (Atiyah and Summers); *Feminism without Illusion* (E. Fox-Genovese); *Parsival* (Von Eschenbach); *The Imperative of Responsibility* (Hans Jonas); *Capitalism and Freedom* (Milton Friedman); *Out of Site: Social Criticism of Architecture* (Diane Ghirardo, ed.); *Governing the Commons* (Eleanor Ostrom); *Inferno* (Dante); *Beyond Culture Wars* (Gerald Graff).

Topic: *Human Being/Being Human*

Books: *On Human Nature* (E. O. Wilson); *The Nature and Destiny of Man* (Reinhold Niebuhr); *The Tangled Wing* (Melvin Konner); *Ethics Without Philosophy* (James Edwards); *Matter and Consciousness* (Paul Churchland); *White Noise* (Don DeLillo); *Mind and Nature* (Gregory Bateson); *Fairness and Justice* (Hear and Fessler); *The Principle of Normalization* (Wolf Wolfensberger); *On Being a Christian and a Lawyer* (Thomas Shaffer); *The Ecological Approach to Visual Perception* (James Gibson); *The Struggle for Human Nature* (Barry Schwartz).

Topic: *Nature*

Books: *Man and the Natural World: A History of Modern Sensibility* (Keith Thomas); *In Memoriam* (Tennyson); *Preludes: A Parallel Text* (Wordsworth); *The Imperative of Responsibility* (Hans Jonas); *Preserving the Global Environment: The Challenge of Shared Leadership* (Jessica Mathews, ed.); *Metaphysics*, book 5 (Aristotle); *Studies in Words*, essay on "Nature" (C. S. Lewis); *The Return to Cosmology: Post-Modern Sciences and the Theology of Nature* (Stephen Toulmin); *Experience and Nature* (John Dewey); *Toward a New Philosophy of Biology* (Ernst Mayr); *The World within the World* (John Barrow); *In Search of Human Nature* (Carl Degler); *Myths from Mesopotamia* (Stephanie Dalley)

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# Advancing the Scholarship of Teaching Through Collaborative Self-Study

Many higher education institutions emphasize the importance of teaching in their mission statements. Good teaching is no longer simply a faculty member's duty; it is critical to the credibility of an institution. However, a relatively small portion of university resources are devoted to the development of faculty as teachers. Few university professors in any discipline receive pedagogical training to prepare them for the teaching task. The opportunities that are provided by institutions typically focus on quality assurance—bringing the poorest teachers and courses up to some level of minimum acceptance—instead of enhancing the overall quality of teaching (Kember & McKay, 1996).

Professors who seek to improve their teaching skills prefer frequent faculty-initiated conversations to annual administration-sponsored workshops (Palmer, 1993), as professors rarely have opportunities for ongoing conversations about teaching with colleagues. Moreover, when such conversations do occur, important discoveries may not be captured because participants do not document or transmit their teaching knowledge. Thus, the top-down model of teaching improvement is unlikely to meet the diverse needs of faculty across the disciplines.

Self-study research is a mode of scholarly inquiry in which teachers examine their beliefs and actions within the context of their work as educators (Whitehead, 1993) and explore pedagogical questions. It allows professors to renew their instructional tools as well as discover new

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tools to convey the rich and changing complexity of knowledge in a discipline (Shulman, 1986a). When compared to participation in traditional teaching workshops, self-study research has numerous benefits. It specifically addresses the faculty member's teaching context, including the subject matter, student population, and other unique aspects of a class. Rather than playing the role of passive participants, faculty members engaged in self-study research actively control the purpose, agenda, and timing of their work as well as its outcomes. Self-study research also enables faculty members to create a tangible product from their work in the form of teaching knowledge that is transferable to colleagues. This accomplishes academia's mission to reach beyond routine knowledge and seek answers for new questions (Debicki, 1996).

For over a decade, education faculty have used self-study research as an effective tool for both teaching improvement and knowledge discovery. Although self-study research has occurred almost exclusively within the discipline of education, it holds great promise as a mode of inquiry for university faculty in every academic discipline. Self-study research has several characteristics that make it well suited for use university-wide. First, faculty can use self-study research to advance knowledge about how to effectively teach various subjects in higher education. Shulman (1986a) suggests that good teaching requires instructors to have pedagogical content knowledge—an understanding of what makes the learning of specific topics easy or difficult. Primary and secondary school teachers obtain their pedagogical content knowledge from the research of university faculty in the field of education, who study such areas as mathematics or reading instruction. University faculty, however, seldom have access to an outside research team that generates pedagogical knowledge matching the faculty member's specialized subject matter. Professors must themselves generate discipline-specific pedagogical content knowledge. Self-study research is a valuable tool for accomplishing this task.

Second, self-study research encompasses many research approaches and methods, allowing university faculty members to build upon their existing research expertise. For example, some self-study techniques already are familiar to faculty members who employ videotaping, journaling, or peer feedback to improve their teaching practice. Unfortunately, these types of self-study efforts are usually infrequent and sporadic rather than systematic (Mallik, 1998), and they may produce insights that are useful only to the individual. Self-study research provides a more structured framework that enables faculty members both to improve their teaching and answer research questions about pedagogy and teaching.

Finally, self-study research can provide new insights into how teachers impact learning outcomes. Shulman's (1986b) model of research on teaching suggests that many factors affect student learning. For Shulman, the fundamental factors are the primary participants—teacher and student. Research on both teacher and student involves investigating each actor's capacities, actions, and thoughts. Of these, the teacher's capacity, the "stable and enduring characteristics of ability, propensity, knowledge, or character" (Shulman, 1986b, p. 7), remains largely a "black box." Although classroom instruction consists of the interaction of many worlds, each of these worlds must be studied in its own terms, including the world of the teacher. Understanding "the explicit and implicit theories" (Shulman, 1986b, p. 26) that teachers bring to bear in their work should be a central feature of research on teaching. Thus, self-study research focuses attention on building a richer understanding of the role of teachers in the classroom, extending beyond simplistic demographic or psychographic measures. A more holistic understanding of teaching across various disciplines can benefit current faculty members as well as improve teaching-related education for prospective faculty members.

In this article we provide a review of the existing body of self-study research. Conducted primarily by education faculty for the purpose of improvement in teaching and teacher education, our examination of this literature suggests that collaboration is vital to encouraging faculty from a variety of disciplines to undertake self-study research for the purpose of moving beyond teaching improvement to knowledge creation. Finally, a three-phase model of collaborative self-study research (comprised of assessment, implementation, and dissemination stages) is offered that tailors self-study research to the needs of university faculty members who have the dual goals of improving their teaching practice and advancing knowledge.

## *Overview of Self-Study Literature*

Self-study research conducted by university faculty began appearing in education journals, conference proceedings, and books around 1990. A review of this literature indicates that self-study research can be grouped into three categories that identify the primary focus of the inquiry: teacher identity, the relationship between teaching beliefs and practice, and collegial interaction.

### *Identity-Oriented Research*

Identity-oriented self-study research includes introspective examinations of "who am I" and retrospective examinations of personal life history and professional development. The emphasis of this strand of self-study research is on developing awareness of one's current self and development as a teacher. Since teaching development within academia often is more an unguided, exploratory odyssey than a smooth, well-planned trajectory, many faculty members have focused on this aspect of self-study (e.g., Allender & Allender, 1996; Bailey, 1998; Cole & Knowles, 1996a; Elijah, 1996; Finley, 1996; McClay, 1998; Olson, 1996; Selley, 1998; Wilcox, 1998).

The need for self-definition is especially critical in situations where the values of a faculty member differ from those of the educational institution. Some self-study research reflects the tensions, surprises, confusion, challenges, and dilemmas faced by beginning university-level teachers. For example, McCall (1996) examined her conflict with her institution's perspective that the goal of teaching was to satisfy student-customers. Guilfoyle (1995) and Hamilton (1995) discussed their struggles in learning their roles as new members of the academy. Although teaching and research were the expected roles in their positions, they found it disturbing to have research valued more than teaching. Tension mounted when their research on their own teaching as an alternative type of scholarship was questioned. Cole and Knowles (1996b) brought the discussion to its climax when they expounded on the battle around tenure and the defeat of individuals whose teaching-oriented research was considered inadequate. The cultural, intellectual, and political dimensions of the professorate compelled these teachers to engage in self-study to establish their identities and values within the academic community.

### *Relationship Between Teaching Beliefs and Practice*

The second category of self-study research reflects faculty members' desire to improve their teaching practice. Many faculty maintain that examining their teaching beliefs is essential to both curricular and instructional improvement (e.g., Bullough, 1991, 1994; Munby, 1996; Russell, 1995; Wood & Geddis, 1999). Very often, implicit theories and hidden beliefs have stronger influence on teachers' practices than their conscious cognitive reasoning. Consequently, a clear understanding of the reasons and motivation for their actions may improve their teaching performance (Candy, 1991).

Self-study research examining teaching beliefs and practice utilizes a variety of perspectives. For example, Abt-Perkins, Dale, and Hauschildt (1998) questioned how biases embedded in their own biographies and social contexts influenced practice. Oda (1998) investigated the ways in which her cultural background affected her teaching, exploring whether this factor enhanced or hindered students' understanding of multicultural issues. Richards and Barksdale-Ladd (1997), with the aid of cases describing educational problems, unearthed subconsciously held professional beliefs that influenced their decision-making processes. Additionally, a few faculty have integrated student feedback into their examination of links between belief and practice. Schiller and Streitmatter (1994) exchanged journals with students who provided commentary on the theory conveyed and the situations created by the authors' teaching. After chronicling her own feelings and thoughts about a course, Trumbull (1996) shared her journals with students who reflected on whether her intentions aligned with her performance.

### *Collegial Interaction*

The third category of self-study research encompasses investigations that are conducted collaboratively, as well as studies that examine the roles of social support, peer input and/or collegial relationships in teaching and professional activities (Featherstone, Chin, & Russell, 1996; Garcia & Litton, 1996; Johnson, Kaplan, & Marsh, 1996; Kleinsasser, Bruce, Berube, Hutchison, & Ellsworth, 1996; Knowles & Cole, 1996; LaBoskey, Davies-Samway, & Garcia, 1996, 1998; Lomax, 1998; Rios, McDaniel, & Stowell, 1996; Ross & Upitis, 1998; Upitis & Russell, 1998). More often than not, self-study research is carried out in concert with other colleagues.

An example of this stream of self-study research is an investigation by Guilfoyle, Hamilton, Pinnegar, and Placier (1996), in which the authors formed a collaborative group while they were doctoral students to focus on such issues as educational reform, academic socialization, and teacher development. The collaboration continued after group members became education faculty members working at separate higher education institutions. Similarities in their struggles gave them a broader perspective from which to understand and handle teaching challenges.

### *Assessment of the Existing Literature*

Our review of the self-study research supports an earlier finding that it is a useful, effective means of improving teaching (Zeichner, 1999). Faculty members have successfully enhanced their teaching by developing a greater understanding of their identities, by examining conflicts between belief and practice, and by working collaboratively with others. The primary limitation of the literature is that researchers have applied their findings to themselves with little discussion about how their results inform the greater teaching community. In addition, much of the literature reviewed eschews addressing validity issues and provides the reader with limited information in terms of data collection and analysis. Yet, because of their research skills, university faculty members are uniquely capable of creating knowledge that furthers understanding outside of themselves. Many of the self-studies cited above fail to capitalize on the potential of their inquiries for creating transferable knowledge that is of benefit to colleagues and other educators. Given university faculty members' dual mission of effective teaching and knowledge creation, self-study research should seek to create benefits beyond those that accrue to the individual faculty member.

### *Collaboration in Knowledge Creation*

As noted earlier, many faculty members are already engaging in self-study activities for the purposes of teaching improvement. Leveraging these activities into systematic self-study research requires relatively little additional effort on the part of the faculty member and results in new knowledge creation. However, a central challenge in expanding self-study research outside the field of education is that education faculty view teaching and pedagogy as legitimate subjects for research, while faculty in other disciplines may not. Faculty in the humanities or sciences perceive themselves as experts in their disciplines but may not feel confident in conducting research on how to *teach* better within their discipline. These faculty also may worry that senior colleagues and journal editors in their fields do not value scholarship about teaching and pedagogy. Academics often are more willing to accept self-study research as "practical knowledge" (i.e., research leading to change in one's practice) rather than "formal knowledge" (i.e., research resulting in new theories that extend beyond the practice setting) created through more established research traditions (Anderson & Herr, 1999; Fenstermacher, 1994; Huberman, 1996; V. Richardson, 1994). To address these concerns and encourage the use of self-study research across all university disciplines, we advocate that faculty members utilize a collaborative approach to self-study research. Collaboration in self-study research provides numerous benefits that can enhance the outcomes of research for the individual, the university, and the academic discipline.

One benefit of collaboration in conducting self-study research is social support. The aim of self-study research is "to provoke, challenge, and illuminate rather than confirm and settle" (Bullough & Pinnegar, 2001, p. 20), thus the faculty member may face criticism and controversy when attempting to disseminate the findings of a self-study research project. Social support provides motivation and encouragement that increase the meaningfulness of the work to the researchers. The involvement of multiple faculty members in self-study research also enhances its visibility and may positively influence perceptions of the work's value.

Another benefit of collaboration is that research groups foster a culture of reflectiveness (Schoenfeld, 1999) that results in higher-level discourse and critique. Collaborating researchers can ask questions, demand details, offer alternative explanations, and critically evaluate research more easily than an individual researcher can. Working with collaborators also can increase the scope of data collection and facilitate completeness, specificity, and clarity in the data (Anderson & Herr, 1999). As Maxwell (1992) notes, there is always the possibility for alternative, equally valid accounts from different perspectives. That the "insights of one person [may] trigger new perspectives or insights in other team members" (Morse, 1994, p. 230) is an additional benefit to collaboration.

Finally, collaboration in self-study research helps researchers avoid solipsism and increases the chances that faculty will create transferable knowledge. Self-study researchers are invested personally and profoundly in their studies (Bullough & Pinnegar, 2001), giving rise to questions about the work's validity. Theories developed through self-study research have been rebuked for their lack of generalizability beyond the research context. For example, Huberman (1996) criticizes teacher research as guilty of hubris, asserting that it makes exaggerated claims about generalizability. He questions whether emic knowledge reported by practitioners studying themselves is useful to others unless it is transformed into a more widely shared etic idiom. Furthermore, Fenstermacher (1994), V. Richardson (1994), and Cole (1994) raise concerns about the validity of introspective research as it is subject to incomplete information recall. These criticisms stem in part from inconsistency in the self-study literature in addressing validity issues.

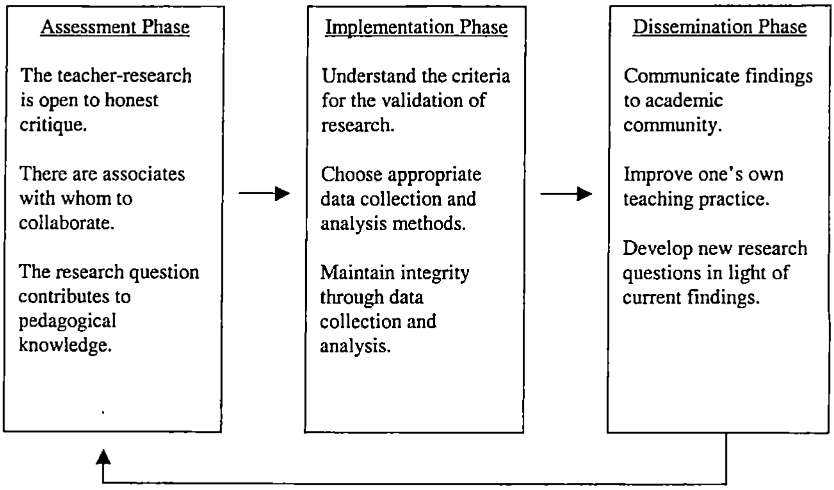
Challenges to the validity of self-study reflect an underlying epistemological question about whether researchers can create useful knowledge when they are their own research subjects. From our perspective, validation, rather than validity, is a more important standard in self-study research. Validation focuses on the "judgment of the trustworthiness or goodness of a piece of research [as] a continuous process occurring within a community of researchers" (Angen, 2000, p. 387). Clearly, self-study does not reduce or eliminate one's obligation to conduct a systematic inquiry that meets the standards of the researcher's chosen methodology. A complete discussion of what constitutes valid research across the many possible research paradigms and methodologies is beyond the scope of this article. However, we contend that the *validation* of self-study research is enhanced significantly through collaboration. Valid knowledge claims can emerge only when conflicting interpretations and action possibilities are discussed and negotiated (Kvale, 1996) by both the collaborative team and the larger community of scholars. Collaboration in conjunction with careful attention to methodology and data analysis can establish the validation of the research.

In conjunction with the benefits listed above, collaboration plays an important role in negotiating between theory and practice. We offer a process model for conducting collaborative self-study research that can improve teaching practice as well as create pedagogical content knowledge. If the scholarship of teaching is to advance, there must be inquiry—within research teams and the research community as a whole—into the process of inquiry itself (Hutchings & Shulman, 1999). Consequently, our collaborative process model contributes to the growing discussion about the process of teaching inquiry.

### *A Process Model of Collaborative Self-Study*

Barnes's (1998) assessment of the field of self-study suggests three areas in particular need of scholarly attention: (1) the preconditions of successful self-study, (2) the meaning of validity in self-study, and (3) the process of self-study. These suggestions are incorporated into a three-stage model we offer for collaborative self-study. The stages of the model are: assessment, implementation, and dissemination (see Figure 1). This model, which includes consideration of the preconditions to collaborative self-study along with method validation, is intended for use across various research paradigms as there is a need to keep the scholarship of teaching open to a wide set of inquiries (Hutchings, 2000). Self-study research does not seek to locate the "best" method for studying one's own teaching, but instead seeks to describe and understand more fully the important phenomenon we refer to as teaching (Hutchings & Shulman, 1999).

The assessment phase requires the researcher to conduct a multilevel evaluation to determine whether preconditions favorable to self-study exist. This evaluation involves considering the researcher's readiness for self-study, the environment for collaboration, and the existing discourse in the academic community on the researcher's chosen topic. The implementation phase directs the researcher to select data collection and analysis methods while giving continuous attention to process and validation. Finally, the dissemination phase asks the researcher to draw conclusions from the self-study process and provide insights to the multiple audiences of the process. This stage of the process should enable


Assessment Phase

The teacher-research is open to honest critique.

There are associates with whom to collaborate.

The research question contributes to pedagogical knowledge.

Implementation Phase

Understand the criteria for the validation of research.

Choose appropriate data collection and analysis methods.

Maintain integrity through data collection and analysis.

Dissemination Phase

Communicate findings to academic community.

Improve one's own teaching practice.

Develop new research questions in light of current findings.

FIG. 1. A Three-Phase Process Model of Collaborative Self-Study

improvement in teaching practice for the researcher and communicate knowledge about teaching to the larger academic community. Ideally, the model is an iterative one in which faculty members return to the assessment phase having derived new research questions from the research process.

### *Assessment Phase*

Assessment of the situation is the first phase of engaging in self-study for the purposes of both teaching improvement and knowledge creation. Faculty should conduct three levels of assessment to determine if situational conditions are favorable to self-study. At the individual level, self-study researchers must assess their own readiness for engaging in self-study, as the process requires honest critique. At the group level, self-study researchers must determine the availability of colleagues with whom they can collaborate and the quality of the relationships with these colleagues. At the level of the academic community, a self-study researcher must select a focus of inquiry and situate it within the existing academic discourse to evaluate potential contributions to knowledge. Each level is discussed below.

*Evaluating self-readiness.* Much of the potential value of self-study lies in its ability to capture the practical knowledge that teachers possess. Schön (1983) describes this type of knowledge as "tacit, implicit in our patterns of action and in our feel for the stuff with which we are dealing" (p. 49). Tacit knowledge is highly personal and hard to formalize, making it difficult to communicate or share with others (Nonaka & Konmo, 1998). Moreover, tacit knowledge is deeply rooted in an individual's actions and experiences as well as the ideals, values, or emotions he or she embraces (Nonaka & Konmo, 1998; Teece, 1998).

In conducting self-study, researchers must articulate their beliefs and interpret their actions. Lakoff and Johnson (1980) believe that

> self-understanding requires unending negotiation and renegotiation of the meaning of your experiences to yourself. It involves the constant construction of new coherences in your life, coherences that give new meaning to old experiences. The process of self-understanding is the continual development of new life stories for yourself. (p.233)

However, most people are reluctant to face the "invisibility of everyday life" because of its familiarity and contradictions (Erickson, 1986, p. 121). Erickson illustrates this point by referring to anthropologist Clyde Kluckhohn's aphorism: "The fish would be the last creature to discover water." Willingness to uncover and reveal existing frames of reference is a criterion of quality in self-study and an indication that the study is not being used to rationalize existing frames of reference (Loughran & Northfield, 1998).

Evaluating readiness for self-study includes considering one's disposition to confronting contradictions and taking risks. The overlapping roles of teacher and researcher can create tensions because of the "living contradiction" (Whitehead, 1993, p. 8) realized by researchers when their teaching practice does not match values they claim to embrace. Pinnegar and Russell (1995) call self-study "high-risk" research because it reveals participants as both educators and human beings through documentation of successes as well as shortcomings. This process is analogous to medicine where clinical research is commonplace as medical faculty monitor their clinical work and do whatever is necessary to improve its impact (Shulman, 2000). Willingness to reveal and confront self are necessary preconditions to self-study (Cochran-Smith & Lytle, 1999; Moore, 1999; Northfield 1996). Because of the intimate nature of the findings in self-study, intellectual honesty and emotional maturity are needed as researchers recognize both positive and negative self-interpretations (Cole, 1994; Northfield, 1996).

Readiness to engage in self-study also includes being prepared to closely document one's behaviors, cognitions, attitudes, and emotions. Erickson (1986) and Cochran-Smith (1999) emphasize the importance of making one's practice explicit to the extent that it becomes a text to be analyzed, reviewed, and critiqued by the researcher and others.

Researchers must demystify their intentions by expressing them in writing, as the process helps researchers explore and analyze newly discovered facets in their teaching lives (Richards & Barskdale-Ladd, 1997). Careful and honest documentation is needed to realize the full potential of self-study, as it provides greater access to the cognitive and emotional aspects of teaching than other research approaches. Writing is, as L. Richardson (1994) notes, "a way of 'knowing'—a method of discovery and analysis" (p. 516). For example, Hamilton (1995) describes how self-study has helped her discover a conflict between her expressed values and her behavior. Her recognition of students' frustration over the clash between her lecturing style and her professed belief in student dialogue enables her to make major shifts in her thinking and teaching. By making their motivations and beliefs explicit, researchers enable themselves and others to study what might otherwise remain elusive (Richards & Barksdale-Ladd, 1997).

*Determining access to collaborators.* Without the participation of colleagues, researchers may have trouble recognizing contradictions and misinterpretations when they evaluate their experience, making it difficult for them to improve their teaching practice. Furthermore, producing valid knowledge via self-study requires a commitment to verifying the data (including the techniques used) and, ultimately, the interpretations drawn (Loughran & Northfield, 1998). Collaboration requires participants to articulate clearly their practices to colleagues and to submit their research decisions and actions to the examination of peers (Munby & Russell, 1994). Thus, self-study participants must determine if they have sufficient access to trusted colleagues who can collaborate with them.

In assessing their access to collaborators, self-study researchers must consider their colleagues' abilities to be both supportive *and* critical. The personal and revealing nature of self-study suggests that collaborators should be colleagues whom the researcher respects and can trust (Morse, 1994). The need for collaboration must not compromise the self-study researcher's willingness to reveal the self. Collaboration should facilitate completeness, specificity, and clarity in the data by requiring researchers to recall and articulate their subjective experiences to an inquisitive audience. Therefore, prior to inviting colleagues to collaborate in self-study, researchers should evaluate their abilities to share interpretations, emotions, and cognitions with those colleagues. Griffiths (1998) indicates that openness might be easiest with like-minded people. Chances for successful collaboration diminishes where there are serious differences in perspective, culture, power, and skill among the collaborating parties (Morse, 1994). Yet, the researcher must also consider those colleagues' ability to communicate criticism effectively. Associates should be selected for their ability to provide perspectives that differ from those of the self-study researcher, preventing her or him from becoming too committed to a single interpretation, and thus open to "the dangers of narcissism and solipsism" (Connelly & Clandinin, 1990, p. 10).

In evaluating which colleagues might be suitable collaborators for self-study, researchers should strive to create a group that has a common purpose, shares in discussing problems, contributes to creating solutions, and has appropriate backgrounds for the enterprise (Schoenfeld, 1999). Minimally, the group must be like-minded with respect to the purpose, potential, and challenges of self-study research itself.

*Defining a focus within academic discourse.* Prior to conducting self-study, participants must identify the purpose and goals of the self-study and become familiar with existing theories that address their question(s) of interest (Cole & Knowles, 1998; Hamilton & Pinnegar, 1998). Consequently, the focus of a self-study is derived from the teacher's motivation for conducting self-study, that is, the pedagogical research question.

The self-study approach facilitates both inductive and deductive inquiry. But like any systematic inquiry, self-study must be grounded in the extant literature to ensure it is not merely personal reflection. Participants in self-study are joining an ongoing dialogue about teaching that provides shared meanings and a common language with which to communicate. To make a contribution to a scholarly conversation, researchers must understand that which has come before and articulate their own experiences within the context of the ongoing dialogue. Selecting a focus of inquiry helps establish the credibility of the self-study research and serves to guide the researcher's analysis and conclusions. For example, Placier used existing theories of college grading practices as a content framework in her 1995 self-study. Subsequently, her self-study led to a better understanding of her own grading practices as a college faculty member and also contributed to the literature on college grading.

Although self-study can be used for addressing multiple aspects of teaching practice simultaneously, selecting a primary focus may increase the usefulness of self-study by helping to organize the efforts of the researcher and the collaborators. For example, the focus is useful in determining what elements of classroom practice are salient as collaborating researchers observe, document, and discuss their experiences. Since teaching improvement is an ongoing goal for self-study researchers, a focused approach to self-study can also be applied iteratively to address a variety of teaching issues over an extended period of time.

Fundamentally, good research is difficult, time-consuming work (Erlandson, Harris, Skipper, & Allen, 1993). Before committing time and energy to a self-study process, self-study researchers should ensure that their research questions are relevant and feasible. The significance of a problem lies in its "timeliness, originality and importance, as well as its academic and practical values" (Erlandson et al., 1993, p. 44). Selecting a focus of inquiry and examining the existing literature related to it are critical to evaluating the significance of the research questions.

In summary, before engaging in self-study, the researcher must conduct assessments at the self, group, and community levels to evaluate self-readiness, determine access to colleagues, and define a focus within the academic discourse. Favorable conditions in these areas are necessary preconditions to choosing self-study as a suitable research approach for advancing scholarship about teaching.

### *Implementation Phase*

Self-study researchers can select from a variety of research methodologies to address a broad range of research questions across vastly differing contexts. Yet in doing so, they must develop a mastery of various methodologies and methods, understand the work of fellow researchers studying the same questions (Huberman, 1996), and address validation explicitly in their writing. Validation is in part established by (1) the fit between research questions, data collection procedures, and analysis techniques, and (2) the effective application of specific data collection and analysis techniques (Eisenhart & Howe, 1992). However, validation is not established merely with techniques, but "like integrity, character, and quality, must be assessed relative to purposes and circumstances" (Brinberg & McGrath, 1985, p. 13).

The selection of data collection and data analysis methods is based on the outcomes of the assessment phase, namely self-readiness, collaborators, and the focus of inquiry. Some methods of self-study expose sensitive issues, which may be problematic for those who are not yet comfortable with sharing or questioning their deeply held beliefs. Similarly, some methods of self-study are unable to adequately capture cognitive, behavioral, or emotional elements that might be the focus of study. To get at the fullest, deepest questions about teaching, it is necessary to learn about the largest possible repertoire of methods from the widest array of disciplines (Hutchings & Shulman, 1999).

*Data collection methods.* Hamilton and Pinnegar (1998) explain that although self-study is a fairly new approach to research, established methods from other research traditions are often employed. Self-study researchers need to explain and justify how the methods chosen allow for valid data collection. Other authors provide detailed guidance on planning and implementing various research methods. Below we provide an overview of numerous methods that have been used in self-studies to date.

Many self-study researchers use some form of narrative inquiry as a data collection method. Narrative inquiry may take many forms, including life history (Cole, 1994; Oda, 1998), autobiography (Brown, 1999; Bullough & Pinnegar, 2001; Parker, 1998), metaphors (Bullough, 1991, 1994), personal essay (Vavrus & Archibald, 1998), and critical incidents (Mohammed, 1998). Another group of methods focuses on collecting the insights of others who participate in the classroom context. These methods include focus groups (Squire, 1998), classroom observation (Selley, 1998), student questionnaires (Grunau, Pedretti, Wolfe, & Galbraith, 1998), interviews (Loughran & Northfield, 1998; Perselli, 1998; Squire, 1998), and journaling (Wilcox, 1998). Finally, several methods emphasize generating relatively objective documentation via artifacts and transcripts. These include faculty course portfolios (Gipe, 1998), E-mail transcripts (Upitis & Russell, 1998), audiotaping (Oda, 1998), and videotaping (Cunningham, 1998; Tidwell & Heston, 1998).

*Data analysis methods.* Data analysis tools are as wide-ranging as data collection methods. Data analysis methods must be appropriate for the type of data collected and must uphold the notion of validation discussed earlier. At issue are the inferences drawn from the data given the methods applied, not whether the data in themselves are valid or invalid (Hammersley & Atkinson, 1983). In analyzing their data, self-study researchers must look for both frequent and rare events and remain open to disconfirming evidence.

Regardless of the process chosen, self-study researchers must articulate the steps taken to analyze the data in such a way that the conclusions are believed. Our literature review suggests that few self-study researchers adequately discuss the reflective processes they use to analyze data, and few use established techniques such as content analysis. One exception is Kelsay's (1989) study of reflective teaching. She acknowledges the impossibility of reporting all the qualitative data collected, thus creating the need "to provide the evidentiary warrant for assertions in the form of vignettes or particular descriptions that portray the actions and narrative of the informants in the study" (p. 7). Kelsay demonstrates care in articulating her attempts to avoid fitting data into preexisting theories prior to developing the theoretical framework.

In sum, a variety of methods are available for data collection and analysis in self-study. Prior to selecting data collection and data analysis methods, research questions must be clearly identified, theoretical bases of inquiry must be examined, and the existing research stream must be considered. Self-study researchers can respond effectively to questions about the validation of their studies only if they carefully choose and implement their research methods.

### *Dissemination Phase*

Scholarship should be public, susceptible to critical review and evaluation, and accessible for exchange and use by other members of one's scholarly community (Shulman, 2000). To participate in the dialogue of the academic community, self-study researchers need to articulate the findings of their research for others, identifying how the results contribute to the academic discourse while addressing any limitations of the study. For self-study to be a legitimate tool for knowledge generation, those involved have to define and connect their work with broader theoretical conversations in the academy. Self-study researchers can contribute to the canon of teaching knowledge by discussing the theoretical underpinnings of their research and sharing insights gleaned from the content of their studies. Researchers must attend carefully to context and setting; otherwise, the reader will struggle to make connections, and conclusions will inevitably lack grounding (Bullough & Pinnegar, 2001).

Our examination of the self-study literature indicates that self-study is conducted by university faculty primarily for the purpose of teaching improvement. Self-study researchers complete their research processes by incorporating the knowledge they have gained into a plan for teaching development (Loughran & Northfield, 1998; Sagor, 1992), and when these researchers subsequently seek to publish their work, it appears that only then do they recognize and attempt to address how the larger academic community could benefit from the knowledge created. Unfortunately, post hoc recognition of the value of the findings fails to ensure that epistemological and methodological issues are considered at the onset of the research process.

To capture self-study research's potential for expanding the scholarship of teaching, we advocate that faculty members make publication of their findings a primary goal of self-study research. By planning for this outcome from the beginning of the research process, self-study can be conducted with sufficient care to withstand the critique of the academic community. To this end, Cole and Knowles (1998) encourage researchers to explicate the goals, intentions, and processes of their work for public appraisal. Until self-study research is more widely represented in academic discourse, self-study research reports must include thorough discussion of validation efforts. At minimum, self-study research documentation should include an audit trail and discussion documenting the adequacy of data collection and analysis (Maxwell, 1992; Miles & Huberman, 1994; Morse, 1994) and provide evidence of the thoroughness and comprehensiveness of the understandings (Madison, 1988).

Finally, self-study research is an iterative process where discoveries prompt new research questions. The knowledge gained and disseminated from a research project may impact the beliefs and practices of the researcher, his or her collaborators, and other teachers in the discipline, creating new directions for research. The process of disseminating the results of self-study research creates a feedback loop that spurs researchers to begin self-study anew.

## *Conclusion*

Collaborative self-study research holds significant potential for creating valid, useful pedagogical content knowledge as well as for improving teaching practice. Although most self-study research is currently conducted in the field of education, the process is appropriate and accessible to faculty members in all disciplines. When faculty engage in self-study to advance theoretical knowledge, they connect their work with existing knowledge and theory in the field, engaging in "praxis" (Bernstein, 1985, p. 223) that is at the core of knowledge creation.

The process of self-study research facilitates faculty development in both teaching and research. By engaging in self-study research, faculty members address different epistemological and methodological questions and utilize new data collection and analysis methods, expanding upon the research skills they already possess. Further, faculty develop new expertise in teaching. Most doctoral education emphasizes acquiring disciplinary knowledge and research skills, with relatively little emphasis on teaching practice and pedagogy. When faculty members treat teaching as a subject of inquiry and examine their beliefs, assumptions, and teaching experiences, they step outside themselves to gain new perspectives of the teaching act (Cochran-Smith, 1999). Although not a substitute for formal pedagogical training, self-study research provides an alternative means of faculty development.

Academe has often undervalued scholarly work on teaching. Although research on other phenomena is recognized and rewarded, teaching often is considered as a private act between faculty and students (Greene, 2000), making faculty's teaching a practice that is neither studied nor discussed. Using the collaborative model proposed in this article will assist in establishing self-study research as an accepted mode of inquiry and further the dialogue on teaching in higher education.

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# The Effects of Part-Time Employment and Gender on Faculty Earnings and Satisfaction

## Evidence from the NSOPF:93

### *Introduction*

Part-time faculty have long played an important role in U.S. postsecondary education. Jacobs (1998) relates that beginning in the late Middle Ages, priests visited colleges and universities to pursue scholarly interests and to collaborate with other researchers. Following the Civil War, professionals began to teach part-time, providing expertise unavailable among full-time faculty. During the 1900s, institutions began to recruit temporary "in residence" artists and political figures. As Jacobs observes:

> These three categories—visiting, clinical, and in-residence—include some of the most creative and effective uses of part-time faculty. In every sense the arrangements are mutually beneficial. The institutions benefit from having practitioners who bring their knowledge and skill to the classrooms and laboratories, while the practitioners have access to resources and a forum in which their work can be pursued and their ideas expressed. (1998, p. 11)

Many part-time faculty labor under conditions consistent with the historical use of part-time faculty described by Jacobs (1998). Institutions

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hire others in response to temporary enrollment increases or as replacements for full-time faculty who are on leave. These situations are typically considered to be appropriate uses of part-time faculty (American Association of University Professors, 1992; National Education Association, 1988). In recent decades, however, part-time faculty have increasingly been hired as permanent substitutes for full-time faculty (Jacobs, 1998; Langenberg, 1998; Leslie, 1998a, 1998b). Leslie (1998b) identifies increasing student enrollments at two-year colleges, driven in large part by increases in the number of two-year colleges, and the leveling off of state subsidies as reasons for the increasing use of part-time faculty.

The percentage of part-time faculty has fluctuated considerably over time, declining from 35% of all faculty in 1960–61 to 22% during the 1970s, then rising to 42% by 1992 (Bowen & Schuster, 1986; Kirshstein, Matheson, Jing, & Zimbler, 1997). Variations in the use of part-time faculty are evident across institutional types and academic fields, although with few exceptions, the percentage of part-time faculty has increased for all institutional types and academic disciplines (Benjamin, 1998; Kirshstein et al., 1997). Although part-time faculty are often used in ways that are beneficial both to institutions and to individual faculty members, their growing numbers represent a marked change in the nature of higher education and in the conditions of employment for faculty. While part-time faculty are often portrayed as being marginalized contingent workers who are poorly paid and comprise a lower caste of faculty (Barker 1998), research shows that this description fits some, but not all part-time faculty (Gappa & Leslie, 1993; Tuckman, 1978; Tuckman & Pickerill, 1988). Concern for those who do labor under exploitive conditions has brought criticism from several professional organizations (Chronicle of Higher Education, 1998; Farrell, 1992; Franklin, Laurence, & Denham, 1988; Leatherman, 1997; Ramusack, 1998). Indeed, the National Education Association (1988, p. 27) describes the "misuse and abuse of part-time, temporary, and nontenure track faculty . . . [as] one of the most serious problems confronting American higher education."

Because women are heavily concentrated in part-time positions, the increasing use of part-time faculty also raises concerns about potential gender inequities in employment opportunities and earnings (Kirshstein et al., 1997). Our research addresses a number of questions about preferences for part-time work, the relative earnings and satisfaction levels of part-time and full-time faculty, and the role that gender may play in these aspects of academic employment. Specifically, we ask: (1) Are women more likely than men to prefer part-time faculty positions, and if so, does this difference account for the higher proportion of women in part-time positions? (2) Are the earnings of part-time female faculty comparable to those of men in these positions after controlling for relevant predictors of faculty salaries? (3) Are men and women in part-time positions equally satisfied with their wages and with other aspects of their jobs?

We address these questions using data from the 1993 National Survey of Postsecondary Faculty (NSOPF:93). Our analyses begin with an examination of how gender and other factors affect a faculty member's preference for part-time employment. Next we compare the compensation of part-time and full-time faculty. We developed three measures of hourly earnings, ranging from base institutional salary to income from all employment sources. For each measure, we estimated the hourly pay difference for part-time and full-time faculty by gender, after controlling for other variables that may also influence pay. Finally, we present a series of statistical models that show how gender, part-time status, and other factors influence a faculty member's satisfaction with his or her benefits, salary, and job overall. We also focus on whether marital status, parental status, and income from nonemployment sources interact with gender in their effects on preferences for part-time employment, compensation, and job satisfaction. While this study focuses only on the effects of part-time employment on the individual, a complete treatment of this issue also requires an analysis of the benefits and costs to colleges and universities associated with the use of part-time faculty.

## *Literature Review*

*Faculty employment status (part-time versus full-time).* In 1992, women comprised approximately 30% of full-time faculty, but 45% of part-time faculty (Kirshstein et al., 1997). As for part-time faculty generally, the percentage of women in part-time positions varies by institutional type and academic field. Women are most heavily concentrated among part-time faculty at private liberal arts colleges and in the field of education (Kirshstein et al., 1997). The extent to which the greater propensity for part-time employment among women reflects individual preferences versus responses to blocked opportunities and discrimination is unclear.

Economists who study labor markets recognize that part-time employment depends on both an employer being willing and able to employ someone on a part-time basis, and an individual being willing and able to work in this capacity. The latter condition is referred to as the supply of labor, while the former condition is known as the demand for labor. Employment levels and wages are determined both by the supply of and demand for labor (Ashenfelter, 1984; Ehrenberg & Smith, 2000; Keeley, 1981; Killingsworth, 1983; Pencavel, 1986).

Economists argue that a person's labor supply decisions (employment versus nonemployment; number of hours worked) are influenced by a number of factors, the most obvious of which is the person's wage rate (Welch, 1997). Holding all else constant, as the wage rate rises, a person would have to give up more income in exchange for spending more time in nonemployment activities. The sensitivity of labor supply to wages will, of course, vary across individuals, and many faculty may be relatively insensitive to wage changes due to the non-pecuniary benefits of faculty work. This conceptualization of labor supply has a direct bearing on the labor supply of women who have traditionally received lower wages. People with more nonemployment-related responsibilities, such as those who are married and/or have dependent children, would have higher opportunity costs of working (Gustafsson & Stafford, 1992; Mroz, 1987; Pencavel, 1998; Ribar, 1992). A person's nonemployment income/wealth may also affect the amount of time he or she chooses to work, because the person could work fewer hours and have the same living standard. Finally, factors such as age (Peracchi & Welch, 1994) or a desire to hold multiple jobs (Conway & Kimmel, 1998; Paxson & Sicherman, 1996) could affect one's preference for part-time employment.

These influences could explain why men, on average, spend more time than women working for pay. Since wives typically bear the greater share of household responsibilities in the family, they may have higher opportunity costs than men for each hour of employment (Connelly, 1992; Goldin, 1990; Killingsworth, 1983; Pencavel, 1998). Likewise, since husbands have traditionally been the family "breadwinners," and often earn more than their wives, even when both are employed full-time, married women would have higher levels of nonlabor income than married men and may therefore be inclined to spend less time working for pay.

Tuckman (1978), Tuckman and Tuckman (1981), and Gappa and Leslie (1993) have found considerable variation among part-time faculty in their motivations for part-time employment. Some part-time faculty clearly prefer part-time employment while others aspire to full-time positions. For some part-time faculty, career options are limited either because they do not have the necessary credentials for full-time employment in academe, or because the supply of qualified workers greatly exceeds the demand in their fields. Examining descriptive statistics from the NSOPF:93, Leslie (1998b) found no gender difference in preferences for part-time employment among those who held part-time positions (53% of men and 51% of women). This comparison, however, does not take into account that more women than men are employed part-time. When all faculty are considered (full-time and part-time), a greater percentage of women than men would prefer part-time employment. However, even this comparison overlooks the fact that other factors may influence a person's willingness to work part-time and an institution's willingness to employ someone on a part-time rather than a full-time basis. Thus, we must move beyond descriptive statistics to determine if and how gender affects preferences for part-time employment.

*Faculty compensation.* Kirshstein et al. (1997) reported that full-time faculty in 1992 earned an average of $48,000 in base institutional salary and $8,000 from sources outside the institution, compared to an average of $10,000 in base institutional salary and $34,000 from outside sources for part-time faculty. Thus full-time faculty averaged higher incomes overall, and the bulk of their earnings came from their employer institutions, while the bulk of part-time faculty's earnings came from outside the institution. Although low pay may not create a hardship for those with other sources of income, it is clearly problematic for those who depend solely on academic employment. Inequities between full- and part-time faculty in compensation and working conditions have raised concerns about what some have referred to as a secondary class of workers within the academy (American Association of University Professors 1992; American Federation of Teachers 1994; Bleck 1997; Parcel 1997; Rosenblum & Rosenblum 1990; Smith & Hixson 1987; Tuckman & Tuckman 1981; Wolf 1997).

The fact that institutional salaries for full-time faculty tend to be higher than for part-time faculty is to be expected, given that full-time faculty almost by definition allocate more time to their work at the institution. It is necessary to adjust earnings for the time devoted to work before making salary comparisons for full-time and part-time faculty. Several researchers have attempted to do this by expressing institutional salaries on a per-course basis. The limited evidence to date suggests that pay differences between full-time and part-time faculty persist even after translating institutional earnings into a per-unit basis. Based on their 1993 survey of 7,000 non-tenure eligible faculty, Gappa and Leslie (1996, p. 15) estimated that full-time faculty typically earned $4,000 per course, while part-time faculty earned only $1,500 after adjusting for instructional time.

Comparing the per-course pay of part-time and full-time faculty has its limitations, however. First, this practice tends to inflate the pay differences between full-time and part-time faculty because many full-time faculty are expected to spend some time on research activities. A second concern is that per-course pay differences do not take into account differences in the time required to teach various courses due to class size, the level of the course (graduate versus undergraduate), familiarity with the subject, teaching experience, office hours, and amount of teaching assistance. Third, this approach obviously cannot be used to examine part-time/full-time compensation differences across all jobs, since many faculty also hold a nonacademic job. As an alternative, we examine pay differences between part-time and full-time faculty per hour worked. This measure also has its limitations, since faculty are generally not paid on an hourly basis and can exercise some discretion on the number of hours devoted to their institutional duties. However, this provides an alternative view of the compensation of part-time and full-time faculty by capturing the effects of time allocated to research and teaching activities.

To isolate the pay difference between full-time and part-time faculty, and to determine if this difference varies by gender, one must also control for the effects of other factors that influence earnings. These variables include individual characteristics, such as highest degree, field/discipline, and years of experience, as well as institutional characteristics. Toutkoushian (1998a), Bellas (1994), Barbezat (1991) and others have shown that female faculty earn less than male faculty after taking into account a range of variables known to affect faculty salaries. Only after controlling for these effects can one report with some confidence that salary inequities exist by gender and/or employment status. Our current analyses focus on the questions of whether a gender gap in salary is evident among part-time faculty, as it is among full-time faculty, and whether gender interacts with the potential effects on faculty compensation of marital status, parental status, and income from non-employment sources.

*Faculty satisfaction with employment conditions.* Part-time faculty (as well as some full-time faculty) generally do not enjoy the job security accompanied by tenure. Part-time faculty, in particular, often lack office space, telephones, computers, and other tools necessary to work effectively (Barker 1998; Gappa & Leslie 1993). The NSOPF:88 data show that part-time faculty who worked 20 or more hours per week fared better with regard to benefits than those who worked fewer hours, but they still had fewer benefits than full-time faculty (Russell, Fairweather, Hendrickson, & Zimbler, 1991).

Given the pronounced differences in compensation and working conditions between full- and part-time faculty, one would expect substantial differences in the job satisfaction levels of these two groups. Surprisingly, this does not appear to be the case with regard to satisfaction with salary. Descriptive statistics from the NSOPF:93 reveal that full- and part-time faculty are equally (dis)satisfied with their salaries (Kirshstein et al., 1997). Overall, slightly more than half of both full- and part-time faculty reported being "very satisfied" or "somewhat satisfied" with their salary, although some variation by type of institution and academic field is evident. This may be because part-time faculty at least partly compensate for low academic salaries with nonacademic salaries, as noted above. Faculty in higher-paying vocationally oriented fields are more satisfied with their salary than those in the liberal arts (Benjamin, 1998; Kirshstein et al., 1997). Both Kirshstein et al. (1997) and Benjamin (1998) found that part-time faculty are far less satisfied than full-time faculty with their employee benefits. As is the case with salary, satisfaction levels among both full- and part-time faculty vary by type of institution and by academic field. Benjamin (1998) found that part-time faculty in vocational fields were more satisfied than those in the liberal arts.

Kirshstein et al.'s (1997) and Benjamin's (1998) analyses of the NSOPF:93 data did not include assessments of the potential effect of gender on faculty members' satisfaction levels. Earlier analyses of data from the NSOPF:88 by Russell et al. (1991) report satisfaction levels by gender, but only for full-time faculty. Among these faculty, men showed only slightly higher satisfaction levels than women with their salary and overall job. However, men were considerably more satisfied than women with their workload (75 and 67%, respectively, reported being "somewhat" or "very satisfied"), and with their mix of job responsibilities (74 versus 64%). A few additional studies report lower satisfaction levels among some groups of women faculty (Carnegie Foundation for the Advancement of Teaching, 1986; Ethington, Smart, & Zeltmann, 1989; Olsen, Maple, & Stage, 1995; Pearson & Seiler, 1983; but see Olsen 1993). However, none of these studies examined whether gender influences job satisfaction among part-time faculty, nor how gender and employment status affect satisfaction with different aspects of faculty work after controlling for other factors.

## *Data Analysis and Results*

*Data description.* Data are from the 1993 National Survey of Postsecondary Faculty (NSOPF:93), sponsored by the National Center for Education Statistics (NCES). The NCES administered a two-stage sampling process. In the first stage, researchers sampled 974 institutions from the population of 3,256 public and private postsecondary institutions. In the second stage, they drew a sample of 31,354 faculty from these institutions. The response rate to the survey was more than 86%, yielding a final sample size of 25,780 individuals. From this group, we selected all individuals who identified themselves as full- or part-time faculty with some instructional duties at two- or four-year colleges and universities. This yielded a final sample of 24,441 individuals. We weighted all observations to take into account the stratified sampling procedure and nonresponse bias.

We created a number of independent variables for our regression models explaining the employment status, earnings, and satisfaction of faculty. To capture an individual's educational attainment, we created dummy variables for whether a faculty member's highest degree was a doctorate, professional, or master's degree ("all other degrees" is the reference category). For demographic variables, we constructed a dummy variable for whether a faculty member was female and used five categories for race/ethnicity: non-Hispanic black, Hispanic, Asian, or other race/ethnicity ("non-Hispanic white" is the reference category). We created variables for whether a faculty member was married, divorced/separated, or cohabitating at the time of the survey ("single" is the reference category). The demographic variables also include number of dependents and years of academic experience. We defined dummy variables to capture type of employing institution: private vs. public, and Research I or II, Doctoral I or II, Comprehensive I or II, and Liberal Arts I or II ("two-year institution" is the reference category).

We created four measures of time allocated to work. The first measure represents hours per week spent in all paid activities at the institution. The second measure adds to the first measure hours per week devoted to unpaid activities at the institution. The third measure adds to the second measure hours/week spent on paid activities outside of the institution, and the fourth measure adds to the third measure total hours/week allocated to unpaid activities outside of the institution. For annual earnings, we also constructed several alternative measures. The first, and most frequently used measure in studies of faculty earnings, represents an individual's base salary from the institution. The second measure adds to the first measure all other salary from the institution, such as supplemental pay for teaching. The third measure of annual earnings adds income from outside employment and self-employment to the second measure. Finally, we also examined total household earnings, which includes the earnings of a spouse and others in the household. We defined the variable, "other household income," as the difference between a person's household income and his or her earnings from all sources.

With regard to employment status, we grouped faculty according to whether an individual was employed full-time or part-time by their institution. We also created a dummy variable to indicate whether the faculty member was employed in a tenure-eligible position.[1] Note that some part-time faculty hold tenure-eligible positions at their institutions, and some faculty who work full-time at their institution are not employed in tenure-eligible positions. Finally, we constructed a series of dummy variables to indicate whether a person was "satisfied" or "very satisfied" with various aspects of his or her position (1 = yes; 0 = no). These include advancement opportunities, benefits, academic freedom, teaching load, salary, job security, and overall job satisfaction. Since the descriptive statistics are similar to those previously reported by Kirshstein et al. (1997), Gappa & Leslie (1996), Selfa et al. (1997), and others, we do not discuss them here (complete descriptive statistics are available from the authors).

While descriptive statistics show that women are more highly concentrated than men in part-time faculty positions, the extent to which this is due to personal choice or to employer discrimination is unknown. We may observe more women in part-time positions because on average women have a greater preference for part-time employment. This preference could be due to the lower likelihood of women having the qualifications necessary for full-time employment in academe. Women may also be more likely to have greater family obligations and hence have higher opportunity costs of working than men. In Table 1, we begin to examine these issues by reporting the means of selected variables by part-time and full-time employment status separately for men and women. Unless otherwise noted in the table, the means for the four columns are statistically different from each other at the one percent level.

As noted earlier, women are more likely than men to be employed part-time (50.6% vs. 38.2%). For both full-time and part-time faculty, women are less likely than men to hold a doctoral degree and have fewer years of academic experience than men. Turning to income, the well-documented earnings difference between men and women is evident across most categories of faculty and measures of earnings. The only exception is that for part-time faculty, the earnings from the employing institution are similar for men and women. Larger gender differences emerge when earnings from other employment and self-employment are also considered. In contrast to part-time faculty, full-time faculty exhibit large gender differences in annual earnings from the institution ($59,082 for men versus $42,547 for women). As for job satisfaction, on average female faculty are less satisfied than male faculty with advancement opportunities, job security, and salary. At the same time, no clear gender patterns emerge in satisfaction with benefits, academic freedom, teaching loads (except for full-time faculty), and overall job satisfaction.

*Models of employment status.* Here we estimated statistical models to explain the employment status of individuals and examine any role that gender plays. As noted earlier, both demand-side factors and supply-side factors could affect whether an individual is employed part-time or full-

TABLE 1

Comparisons of Means for Selected Variables by Gender and Full-Time/Part-Time Status

| Variable | Men Only | | Women Only | |
|---|---|---|---|---|
| | Full-Time | Part-Time | Full-Time | Part-Time |
| Highest Degree: | | | | |
| Doctorate | 59% | 18% | 40% | 11% |
| Professional[a] | 14% | 14% | 9% | 6% |
| Master's | 22% | 43% | 44% | 56% |
| Demographic Variables: | | | | |
| Married | 82% | 76% | 62% | 67% |
| Divorced/separated | 8% | 11% | 17% | 15% |
| Cohabiting[a,b] | 2% | 2% | 3% | 3% |
| Single | 8% | 11% | 18% | 15% |
| Number of dependents[b] | 1.72 | 1.63 | 0.95 | 0.99 |
| Years institutional experience | 16.3 | 8.8 | 11.6 | 6.7 |
| Annual Earnings: | | | | |
| [1] = Base salary[d] | $54,136 | $10,473 | $39,796 | $11,140 |
| [2] = Institutional salary[d] | $59,082 | $11,453 | $42,547 | $12,259 |
| [3] = [2] + all employment | $68,352 | $59,090 | $46,666 | $34,859 |
| Total household income | $84,281 | $69,526 | $77,410 | $63,764 |
| Time Allocation (hours per week): | | | | |
| [1] = Paid activities at institution | 43.80 | 10.62 | 40.68 | 12.54 |
| [2] = All activities at institution | 48.75 | 13.58 | 46.13 | 15.90 |
| [3] = [2] + paid outside activities | 51.84 | 33.14 | 48.23 | 29.37 |
| [4] = [3] + unpaid outside activities | 53.75 | 35.01 | 50.23 | 31.36 |
| Percent Faculty Satisfied with: | | | | |
| Advancement opportunities | 72% | 48% | 61% | 41% |
| Benefits[c] | 75% | 46% | 76% | 39% |
| Freedom[d] | 81% | 91% | 75% | 90% |
| Teaching load | 72% | 85% | 62% | 82% |
| Salary[a] | 58% | 59% | 50% | 53% |
| Job security | 83% | 61% | 75% | 50% |
| Job overall | 85% | 87% | 83% | 85% |
| Sample size | 9,272 | 5,721 | 4,669 | 4,779 |
| Percentage Part-Time by Gender | 38.2% | | 50.6% | |

NOTES: Data are taken from the 1993 National Survey of Postsecondary Faculty (NSOPF:93). All data are weighted to correct for sampling and non-response bias. Sample includes all full-time or part-time faculty with some instructional duties ($n = 24{,}441$). Salary from the institution includes basic salary, supplemental teaching, and other supplemental income. Self-employment income includes income from legal services, counseling, outside consulting, and self-owned businesses. Time at paid activities includes all paid activities at the institution (teaching, research, administration, etc.). The means for all variables shown here are statistically different at the 1% significance level using an analysis of variance test. Unless otherwise noted, the means for all variables are statistically different for part-time men versus part-time women, full-time men versus full-time women, part-time men versus full-time men, and part-time women versus full-time women.

[a] Means for full-time men versus part-time men are not statistically different.

[b] Means for full-time women versus part-time women are not statistically different.

[c] Means for full-time men versus full-time women are not statistically different.

[d] Means for part-time men versus part-time women are not statistically different.

time. A person may be willing to supply less labor to the market, and thus prefer part-time work, due to personal characteristics such as gender, marital status, age, and income/wealth from other sources. The difficulty in disentangling these effects is that analysts do not typically observe the supply and demand behavior that leads to full- or part-time employment; all that is known is whether someone is employed part-time or full-time, and these factors stem from a combination of supply and demand forces.

The NSOPF:93 data allow us to examine the supply side of the market, since the survey asked part-time faculty whether they prefer part-time employment. We constructed a dummy variable equal to one if the individual was employed part-time and preferred part-time employment, and equal to zero otherwise. This is not a perfect measure of an individual's preference for part-time employment because some faculty employed full-time might prefer part-time employment but were not asked this question. Nonetheless, the variable provides an unusual opportunity to examine separately the supply side of the part-time labor market and perhaps identify factors that influence a preference for this type of employment. Assuming that full-time faculty prefer full-time employment, 22.5% of all faculty prefer part-time employment, and 43% of all faculty are actually employed part-time. Overall, women are 6% more likely than men to prefer part-time employment (26% vs. 20%); however, among faculty who are employed part-time, there is little gender difference in their preference for part-time employment (see Table 2).

We estimated two sets of logistic regression models to examine a faculty member's employment status. The first set of models focuses on the preference for part-time employment (1 if yes; 0 otherwise), the second set explains whether someone is actually employed part-time (1 if yes; 0 otherwise). In the first set of models, we posit that an individual's preference for part-time employment may be a function of the following supply-side factors: family and marital status, age, race/ethnicity, gender, and other household income. An individual's age could have a quadratic relationship with a person's preference for part-time employment if people in their prime earning years are most likely to prefer full-time to part-time employment, while faculty members who retire from full-time positions prefer to continue teaching on a part-time basis.

The second set of models includes both supply-side and demand-side factors that may affect whether someone is employed part-time. These models include all of the factors used in the first models, plus possible demand-side factors. The first of these demand-side factors is the type of institution by which a faculty member is employed. Holding all else constant, we would expect two-year colleges to be more likely than four-year institutions to hire part-time faculty, and there could be differences in the propensity for public and private institutions to employ part-time faculty. Years of experience may be a demand factor in that institutions could prefer to employ more experienced faculty in full-time academic positions. Finally, variation in the characteristics of academic disciplines could affect an institution's interest in employing someone on a full-time versus part-time basis.

We estimated two models for each of the dependent variables, preference for part-time employment and actual part-time employment. The models shown in the last two columns of Table 2 represent reduced-form equations predicting actual part-time employment, since they incorporate both demand-side and supply-side factors to explain whether an individual is currently employed part-time (as compared to *preferring* part-time employment). The first model for each dependent variable contains the independent variables described above. The second models add to the first model interaction terms for gender and marital status, number of dependents, and other household income, in an effort to determine if these supply-side factors have differential effects on employment status for men and women. All of the coefficients are expressed as marginal effects, meaning they show the change in the probability of a person preferring to be (or actually being) employed part-time due to a one-unit increase in the independent variable.

After controlling for other factors in the model, we found that women are 6% more likely than men to prefer part-time employment. The first two columns in Table 2 show that while married faculty members are more likely than their single counterparts to prefer part-time employment, the interaction of gender and marital status indicates that it is married women (and not married men) who have a greater preference for part-time academic employment. In contrast, while higher levels of other household income and greater numbers of family dependents increase a person's preference for part-time employment, both factors have the same effects for women and men.

The last two columns of Table 2 demonstrate that after controlling for the other supply-side factors as well as demand-side factors in the model, there is a very little difference between men and women in their likelihood of part-time employment. This, combined with the findings in the first two columns of Table 2, provides little evidence of demand-side discrimination by institutions that might prefer to fill part-time positions with women. While there is no overall difference in actual employment in part-time positions based on marital status, we found that married women were more likely than married men to be employed part-time. Faculty with more dependents are more likely to be employed part-time after taking other factors into account. Interestingly, the interaction with gender shows that the effect holds only for men. Other household income has a positive effect on the likelihood that a faculty member will

TABLE 2

Logistic Regression Models Explaining Employment Preference and Employment Status of Faculty

| | Y = 1 if Prefers Part-time Employment, Else = 0 | | Y = 1 if Actually Employed Part-time, Else = 0 | |
|---|---|---|---|---|
| Variable | Model 1 | Model 2 | Model 3 | Model 4 |
| Doctoral degree | —— | —— | –0.563** | –0.562** |
| | | | (40.60) | (40.50) |
| Professional degree | —— | —— | –0.253** | –0.251** |
| | | | (16.24) | (16.10) |
| Master' degree | —— | —— | –0.211** | –0.211** |
| | | | (17.70) | (17.65) |
| Married | 0.046** | –0.014 | 0.011 | –0.036* |
| | (4.95) | (1.20) | (0.90) | (2.30) |
| Divorced/separated | 0.050** | 0.045** | 0.024 | 0.025 |
| | (4.35) | (3.96) | (1.60) | (1.64) |
| Cohabitating | 0.042* | 0.040* | 0.039 | 0.037 |
| | (2.20) | (2.10) | (1.49) | (1.44) |
| # Dependents | 0.008** | 0.010** | 0.006* | 0.012** |
| | (3.70) | (3.81) | (2.05) | (3.28) |
| Other household income | 0.0002** | 0.0001* | 0.0004** | 0.0003** |
| | (5.42) | (2.22) | (5.98) | (2.83) |
| Female | 0.064** | –0.020 | 0.016 | –0.039** |
| | (11.15) | (1.81) | (1.94) | (2.60) |
| Age | –0.031** | –0.031** | –0.038** | –0.039** |
| | (16.98) | (17.01) | (13.55) | (13.72) |
| Squared age | 0.0003** | 0.0003** | 0.0005** | 0.0005** |
| | (17.23) | (17.42) | (15.69) | (15.93) |
| Asian | –0.059** | –0.058** | –0.080** | –0.080** |
| | (3.97) | (3.90) | (4.06) | (4.07) |
| Non-Hispanic Black | 0.015 | 0.015 | –0.065** | –0.065** |
| | (1.22) | (1.27) | (3.96) | (3.93) |
| Hispanic | 0.001 | 0.0008 | –0.038 | –0.039 |
| | (0.10) | (0.05) | (1.82) | (1.85) |
| Other race | –0.044 | –0.046 | 0.026 | 0.027 |
| | (1.81) | (1.89) | (0.86) | (0.87) |
| Years of experience | —— | —— | –0.018** | –0.018** |
| | | | (36.68) | (36.62) |
| Female x married | —— | 0.109** | —— | 0.089** |
| | | (8.23) | | (4.88) |
| Female x # dependents | —— | 0.0009 | —— | –0.012* |
| | | (0.21) | | (2.00) |
| Female x other household income | —— | 0.0001 | —— | 0.0003 |
| | | (1.42) | | (1.82) |
| Constant | 0.412** | 0.455** | 1.152** | 1.192** |
| | (9.71) | (10.65) | (17.33) | (17.78) |
| Log Likelihood | –12,807** | –12,765** | –12,832** | 12,817** |
| % cases correctly predicted | 85% | 85% | 74% | 74% |

NOTES: Data are taken from the 1993 National Survey of Postsecondary Faculty (NSOPF:93). Estimated coefficients represent the effect of a one-unit increase in each variable on the probability that the dependent variable will equal one ("marginal effects"). Calculated $t$-statistics (absolute values) are shown below each coefficient. The number of faculty in each model is 24,441. All data are weighted to take into account sampling and non-response bias. Models 3 and 4 also include controls for the Carnegie classification and public/private status of the institution and the faculty member's field/discipline. The complete results are available from the authors upon request.
**$p < 0.01$. *$p < 0.05$ (two-tailed test).

be employed part-time, and the effect is the same for men and for women.

Examining the other regressors in the model explaining actual part-time employment, we found that individuals with higher terminal degrees (doctoral, professional, master's) are less likely than other individuals to be employed part-time. Not surprisingly, two-year institutions hire more part-time faculty than four-year institutions. Younger and older faculty are more likely than middle-aged faculty to be employed part-time. With regard to race/ethnicity, both Asian and non-Hispanic black faculty are less likely than their non-Hispanic white peers to be employed part-time.

In Table 3, we decompose the gender difference in part-time employment to show how it is affected by supply-side and demand-side factors. The first row uses the proportions of female and male faculty who are employed part-time (0.506 and 0.382, respectively) to find the gender difference in part-time employment before controlling for either supply-side or demand-side factors. Model 3(a) represents the gender difference in actual part-time employment after controlling for the supply-side factors shown in Model 1 in Table 2. We then added demand-side variables to Model 3(a) (complete results are available from the authors).

The first row of Table 3 shows that without controlling for supply-side

TABLE 3

Effects of Supply-Side and Demand-Side Factors on the Gender Difference in Part-Time Employment

| Model | Gender Difference In Part-Time Employment (Female–Male) | T-statistic |
|---|---|---|
| No controls for supply-side or demand-side variables | 0.124 | 19.13** |
| 3(a): Controls for all supply-side variables | 0.109 | 15.62** |
| 3(b): All supply-side variables plus field | 0.108 | 14.88** |
| 3(c): All supply-side variables plus institutional type | 0.086 | 11.89** |
| 3(d): All supply-side variables plus experience | 0.064 | 8.79** |
| 3(e): All supply-side variables plus highest degree | 0.041 | 5.34** |
| 3(f): All supply-side and demand-side variables | 0.016 | 1.94+ |

NOTES: The data are taken from the 1993 National Survey of Postsecondary Faculty (NSOPF:93). $N = 24{,}441$ in all models. Logistic regression analysis is used to estimate the coefficients in Models 3(a) through 3(f). Estimated coefficients represent the effect of a one-unit increase in each variable on the probability that the dependent variable will equal one ("marginal effects"). All data are weighted to take into account sampling and non-response bias. The first row shows the difference in the proportions of men and women who are employed part-time. Model 3(a) controls for marital status (3 variables), number of dependents, other household income, age and age squared, race/ethnicity (4 variables), and female. Model 3(b) adds controls to Model 3(a) for aggregate field/discipline (9 variables). Model 3(c) adds controls to Model 3(a) for Carnegie classification of institution (4 variables) and whether private. Model 3(d) adds a control to Model 3(a) for years of experience. Model 3(e) adds controls to Model 3(a) for highest degree (3 variables). Model 3(f) adds all of the additional variables in Models 3(b) through 3(e) to Model 3(a).: ** $p < 0.01$ + $p < 0.10$ (two-tailed test).

or demand-side factors, women were 12.4% more likely than men to hold part-time faculty positions. After taking into account all of the supply-side factors examined here, we find that women were still 10.9% more likely than men to occupy part-time positions. Controlling for differences in educational attainment between men and women (Model 3(e)) reduces the gender difference in part-time employment by the greatest amount, leaving only a 4% gender difference. Differences between women and men in years of experience and institutional type also led to further reductions in the gender difference in part-time employment. Interestingly, differences in the field compositions of male and female faculty explain virtually none of the gender difference in part-time employment. As noted in Table 2, controlling for all of the supply-side and demand-side factors simultaneously reduces the gender difference in part-time employment to 1.6%. Taken together, the results show that demand-side factors explain most of the observed difference in part-time employment rates between women and men.

*Models of compensation per hour worked.* We now turn to the relative compensation of part-time and full-time faculty and the question of whether pay differences vary by gender. Our earnings equations contain many of the same controls found in typical faculty salary models, such as highest degree, marital and parental status, gender, age, years of experience, race/ethnicity, institutional type, geographic region, and field/discipline. Since our sample includes part-time as well as full-time faculty, we made several modifications to the earnings equation. First, the dependent variables measure earnings per hour of work rather than annual compensation in an effort to make more valid comparisons between part-time and full-time faculty. As discussed earlier, faculty are not typically paid on an hourly basis, and they have some discretion over the amount of time they can allocate to their work. Nonetheless, focusing on earnings per hour of work takes into account the amount of time faculty allocate to all types of work at the institution as well as other jobs they may hold.

In this study, we consider three alternative measures of earnings per hour worked. In the first equation (Models 1 and 2 of Table 4), the dependent variable is the log of base salary from the institution divided by reported hours worked for pay at the institution during the academic year. The dependent variable for the second equation (Models 3 and 4 of Table 4) measures total compensation from the institution (base salary plus institutional supplements) divided by hours worked for pay at the institution. Finally, the last equation (Models 5 and 6 of Table 4) measures total compensation from all employment sources divided by total hours worked for pay at all jobs combined. This last equation is particularly useful for comparing a person's employment status at the institution with their overall compensation. Given that faculty may be employed in a number of different jobs outside the institution, it is not possible to express total compensation on a per-course basis, and therefore compensation per hours worked is the most consistent approach. We added a variable for other household income to each salary equation to determine if outside income has an effect on compensation for academic work. We also added dummy variables for employment status (part-time versus full-time, and tenured/tenure-eligible versus nontenure-eligible) to see if these affect how hourly compensation varies, holding other factors constant. As before, we test to see if gender interacts with marital status, number of dependents, other household income, as well as part-time employment.

While the hourly salary models explain considerably less variation than is typically found in studies of annual salary for full-time faculty, the effects of regressors traditionally used in these studies are similar in explaining variations in hourly earnings for both part-time and full-time faculty. With regard to gender, women earn 5–7% less per hour from institutional sources than men, and 20% less than men per hour when all forms of compensation are taken into account. These estimates parallel the consistent finding of significant unexplained pay differentials between full-time male and female faculty (Bellas, 1994; Toutkoushian, 1998a), and may also suggest that women face larger pay gaps outside academia than within it. Married faculty still enjoy a "marriage premium" in earnings per hour worked; however, contrary to findings from annual salaries for full-time faculty (Bellas, 1992; Toutkoushian, 1998b), no gender difference is observed in the effect of marital status on hourly earnings. Women with more dependents earn less (from all sources) than comparable men with the same number of dependents, although no similar gender difference exists for institutional salaries. Likewise, women with greater household income earn more than men with the same level of household income. Finally, the results show that among part-time faculty women only, the earnings for work at the institution are 7–10% higher than for men. Yet, when all forms of compensation are examined, part-time women earn 19% less per hour than part-time men.

We found that part-time faculty earn approximately 60% less than comparable full-time faculty in institutional salary (base salary or total institutional salary) when expressed on an hourly basis. Interestingly, part-time faculty earn 9% more per hour of work than their full-time counterparts when compensation from all employment is considered. This may reflect the relatively low pay of faculty relative to nonacademic

TABLE 4

Regression Models Explaining Three Alternative Measures of Faculty Compensation Per Hour Worked

| | Y = Log (Base Salary/Hour) | | Y = Log (Inst. Salary/Hour) | | Y = Log (TotalEarnings/Hour) | |
|---|---|---|---|---|---|---|
| Variable | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
| Married | 0.104** | 0.081** | 0.104** | 0.104** | 0.103** | 0.120** |
| | (4.44) | (2.81) | (4.46) | (3.58) | (4.00) | (3.78) |
| Divorced/separated | –0.012 | –0.016 | –0.004 | –0.006 | 0.064* | 0.072* |
| | (0.41) | (0.56) | (0.13) | (0.22) | (2.03) | (2.28) |
| Cohabitating | 0.053 | 0.050 | 0.078 | 0.076 | 0.128* | 0.130* |
| | (1.07) | (1.02) | (1.60) | (1.56) | (2.38) | (2.43) |
| Other household income | –0.001** | –0.002** | –0.001** | –0.002** | –0.003** | –0.003** |
| | (10.85) | (9.14) | (11.07) | (9.45) | (19.92) | (17.61) |
| # Dependents | 0.005 | –0.009 | 0.0005 | –0.005 | 0.023** | 0.031** |
| | (0.82) | (1.33) | (0.08) | (0.78) | (3.80) | (4.22) |
| Female | –0.050** | –0.137** | –0.063** | –0.131** | –0.207** | –0.107** |
| | (3.20) | (4.44) | (3.99) | (4.22) | (12.01) | (3.16) |
| Age | 0.014** | 0.014** | 0.013* | 0.013* | 0.053** | 0.053** |
| | (2.74) | (2.73) | (2.51) | (2.50) | (9.48) | (9.36) |
| Age squared | –0.0001 | –0.00009 | –0.00009 | –0.00008 | –0.0005** | –0.0005** |
| | (1.87) | (1.82) | (1.71) | (1.68) | (8.35) | (8.26) |
| Years of experience | 0.016** | 0.016** | 0.014** | 0.014** | 0.010** | 0.010** |
| | (9.47) | (9.47) | (8.31) | (8.29) | (5.16) | (5.19) |
| Experience squared | –0.0002** | –0.0002** | –0.0002** | –0.0002** | –0.0001** | –0.0001** |
| | (6.23) | (6.29) | (5.13) | (5.19) | (3.24) | (3.12) |
| Tenure-eligible position | 0.144** | 0.141** | 0.148** | 0.143** | 0.117** | 0.124** |
| | (7.01) | (6.85) | (7.18) | (6.96) | (5.20) | (5.50) |
| Employed part-time | –0.599** | –0.631** | –0.580** | –0.623** | 0.090** | 0.174** |
| | (29.79) | (26.54) | (28.86) | (26.19) | (4.08) | (6.67) |
| Female x married | —— | 0.031 | —— | –0.013 | —— | –0.025 |
| | | (0.92) | | (0.39) | | (0.67) |
| Female x # dependents | —— | 0.017 | —— | 0.014 | —— | –0.029* |
| | | (1.43) | | (1.24) | | (2.28) |
| Female x other household income | —— | 0.0004 | —— | 0.0005* | —— | 0.001** |
| | | (1.65) | | (2.00) | | (4.79) |
| Female x pt employment | —— | 0.070* | —— | 0.095** | —— | –0.193** |
| | | (2.47) | | (3.32) | | (6.18) |
| Constant | 1.962** | 2.006** | 2.068** | 2.103** | 1.344** | –1.313** |
| | (16.10) | (16.34) | (16.95) | (17.12) | (10.05) | (9.77) |
| R-squared | 0.16 | 0.16 | 0.15 | 0.16 | 0.07 | 0.08 |

NOTES: The data are taken from the 1993 National Survey of Postsecondary Faculty (NSOPF:93). Calculated $t$-statistics (absolute values) are shown below each coefficient. All data are weighted to take into account sampling and non-response bias. The number of faculty included in each model is 24,441. Dependent variable in models 1 and 2 is defined as the log of annual base salary from the institution divided by hours worked for pay at the institution. Dependent variable in models 3 and 4 is defined as the log of total institution salary divided by hours worked for pay at the institution. Dependent variable in models 5 and 6 is defined as the log of annual compensation from all sources divided by total hours worked for pay at all employment. Models also include controls for the Carnegie classification, geographic location, and public/private status of the institution, and the faculty member's highest degree, race/ethnicity and field/discipline. The complete results are available from the authors upon request.

**$p < 0.01$. *$p < 0.05$ (two-tailed test).

professionals. On the whole, however, the total earnings per hour worked of part-time faculty are comparable to the earnings of full-time faculty. This result should not be taken as evidence that all part-time faculty are paid sufficiently. Many part-time faculty have low total earnings, and the difference in earnings between full-time and part-time faculty is extreme.

Several other results from Table 4 deserve mention. The negative coefficient for other household income suggests that compensation per hour worked is lower across all three income measures for faculty with more income from other sources. The results further show that faculty employed in tenure-eligible positions earn between 11 and 14% more per hour of work than other faculty. Since many part-time faculty hold nontenure-eligible positions, including this variable tends to understate the hourly pay difference between part-time and full-time faculty.[2]

*Models of job satisfaction.* Finally, we examine how a faculty member's characteristics affect satisfaction with selected aspects of his or her job, paying particular attention to any effects of gender and part-time employment. As Table 5 shows, we examined three different measures of job satisfaction: overall job satisfaction, satisfaction with benefits, and satisfaction with salary. In each model, we controlled for the effects of highest degree, marital and family status, gender, age, race/ethnicity, type of institution, field, and years of experience. In addition, we added controls for the percentage of time a faculty member spends in teaching activities, hours/week devoted to working outside the institution, whether someone is employed part-time, and whether someone holds a tenure-eligible position. Since the dependent variables are dichotomous (1 if satisfied or very satisfied; 0 otherwise), we again use logistic regression analysis to estimate the parameters of the model and report the marginal effects. The second model for each dependent variable adds interactions between gender with marital status, number of dependents, other income, and whether employed part-time to determine if the effects of these factors on faculty satisfaction vary by gender.

We found that women are less satisfied than men with all three satisfaction measures, with the largest gender difference in satisfaction with salary. The interaction effect between gender and part-time employment reveals that women in part-time positions are less satisfied than part-time men with their benefits, yet more satisfied with their salary. The significant interaction effects between gender and family status show that married women are less satisfied than married men with their salaries and that women with dependents have less overall job satisfaction than men with dependents.

Faculty holding part-time academic positions are much less satisfied

TABLE 5

Regression Models Explaining Three Alternative Measures of Faculty Compensation Per Hour Worked

|  | Y = 1 if Satisfied w/Job—Else = 0 |  | Y = 1 if Satisfied w/Benefits—Else = 0 |  | Y = 1 if Satisfied w/Salary—Else = 0 |  |
|---|---|---|---|---|---|---|
| Variable | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
| Married | 0.032**<br>(4.37) | 0.032**<br>(3.56) | 0.004<br>(0.35) | 0.004<br>(0.26) | 0.002<br>(0.21) | 0.024<br>(1.75) |
| Divorced/separated | 0.018*<br>(2.02) | 0.019*<br>(2.18) | –0.005<br>(0.37) | –0.006<br>(0.41) | –0.015<br>(1.09) | –0.014<br>(0.99) |
| Cohabitating | –0.010<br>(0.73) | –0.010<br>(0.72) | –0.049*<br>(2.10) | –0.048*<br>(2.06) | –0.053*<br>(2.29) | –0.053*<br>(2.27) |
| # Dependents | 0.004*<br>(2.14) | 0.007**<br>(3.11) | –0.007*<br>(2.54) | –0.008**<br>(2.63) | –0.004<br>(1.42) | –0.004<br>(1.36) |
| Other household income | 0.0002**<br>(3.02) | 0.0002*<br>(2.47) | 0.00009<br>(1.44) | 0.0002*<br>(2.34) | 0.0002**<br>(2.73) | 0.0002*<br>(2.28) |
| Female | –0.014**<br>(2.76) | –0.004<br>(0.47) | –0.021**<br>(2.82) | 0.013<br>(0.82) | –0.050**<br>(6.67) | –0.035*<br>(2.37) |
| Age | –0.011**<br>(5.76) | –0.011**<br>(5.81) | –0.010**<br>(4.11) | –0.010**<br>(3.99) | –0.014**<br>(5.47) | –0.014**<br>(5.42) |
| Squared age | 0.0001**<br>(6.30) | 0.0001**<br>(6.32) | 0.0001**<br>(5.32) | 0.0001**<br>(5.18) | 0.0002**<br>(6.21) | 0.0002**<br>(6.12) |
| Years of experience | 0.0004<br>(1.35) | 0.0004<br>(1.35) | 0.0007<br>(1.75) | 0.0008<br>(1.94) | 0.001**<br>(2.98) | 0.001**<br>(2.84) |
| Pct. time teaching | –0.00007<br>(0.82) | –0.00006<br>(0.75) | –0.0005**<br>(4.15) | –0.0005**<br>(4.34) | –0.0004**<br>(3.20) | –0.0004**<br>(3.02) |
| Hours/week at other work | 0.0004*<br>(2.00) | 0.0004*<br>(1.97) | –0.0003<br>(1.16) | –0.0004<br>(1.55) | 0.0009**<br>(3.54) | 0.0009**<br>(3.62) |
| Tenure-eligible position | 0.035**<br>(5.22) | 0.034**<br>(5.14) | 0.043**<br>(4.17) | 0.047**<br>(4.54) | 0.064**<br>(6.50) | 0.062**<br>(6.29) |
| Employed part-time | 0.014*<br>(2.09) | 0.011<br>(1.33) | –0.309**<br>(30.29) | –0.276**<br>(22.95) | 0.011<br>(1.04) | –0.007<br>(0.59) |
| Female x married | —— | –0.0005<br>(0.04) | —— | 0.006<br>(0.39) | —— | –0.045**<br>(2.74) |
| Female x # dependents | —— | –0.010**<br>(2.68) | —— | 0.007<br>(1.26) | —— | –0.002<br>(0.34) |
| Female x other household income | —— | –0.00004<br>(0.43) | —— | –0.0003*<br>(2.04) | —— | –0.00003<br>(0.26) |
| Female x pt employment | —— | 0.007<br>(0.74) | —— | –0.072**<br>(5.21) | —— | 0.039**<br>(2.88) |
| Constant | 0.451**<br>(10.49) | 0.449**<br>(10.37) | 0.539**<br>(9.23) | 0.516**<br>(8.76) | 0.515**<br>(8.64) | 0.505**<br>(8.41) |
| Log Likelihood | –10,076** | –10,071** | –14,708** | –14,691** | –16,304** | –16,295** |
| % Cases correctly predicted | 84% | 84% | 70% | 70% | 58% | 58% |

NOTES: Data are taken from the 1993 National Survey of Postsecondary Faculty (NSOPF:93).. Estimated coefficients represent the effect of a one-unit increase in each variable on the probability that the dependent variable will equal one ("marginal effects"). Calculated t-statistics (absolute values) are shown below each coefficient. The number of faculty included in each model is 24,441. All data are weighted to take into account sampling and non-response bias. Models also include controls for the Carnegie classification and public/private status of the institution, and the faculty member's highest degree, race/ethnicity and field/discipline. The complete results are available from the authors upon request.

**$p < 0.01$. *$p < 0.05$ (two-tailed test).

than full-time faculty with their benefits (*t*-ratio = 30). At the same time, despite the significant institutional hourly pay difference between part-time and full-time faculty, both groups report being equally satisfied (or dissatisfied) with their institutional salaries. There is marginal evidence that part-time faculty are more satisfied than full-time faculty with their jobs overall. We again reestimated the models presented in Table 5 after dropping the control for tenure-eligible positions. While we found that part-time faculty were still less satisfied with their benefits than their full-time counterparts, this reestimation did result in part-time faculty being 3% more likely than full-time faculty to express dissatisfaction with their salary. We found no difference in overall job satisfaction between part-time and full-time faculty after omitting the control for tenure-eligible positions (complete results are available from the authors).

## *Discussion and Conclusions*

Professional associations such as the National Education Association and the American Association of University Professors recognize, as do other observers and researchers of higher education, that many generalizations have been made about part-time faculty and that the use of part-time faculty by colleges and universities is a complex issue. Part-time faculty clearly play an important role in higher education, but their increasing substitution for full-time tenure-eligible faculty raises serious concerns for the future of higher education in the United States.

Are part-time faculty (disproportionately women) best described as an exploited class of workers, or are they individuals who have made voluntary choices and are satisfied with those choices? Based on our findings, we conclude that the "truth" lies somewhere in the middle. Supply-side factors clearly lead some individuals—particularly women—to prefer part-time academic employment. On the demand side, factors such as educational attainment, experience, and institutional type help explain the high concentrations of some individuals in part-time positions. We found that part-time faculty are as satisfied with their salary and overall jobs as comparable full-time faculty. When compensation from all sources of employment are considered, part-time faculty compare quite favorably to their full-time counterparts in terms of compensation per hour of work. This may reflect the fact that many part-time faculty have careers outside of academia and teach part-time primarily for the intrinsic rewards of teaching.

On the other hand, some of our findings validate concerns that part-time faculty are treated inequitably. The compensation of part-time faculty by academic employers is lower than that paid to full-time faculty even when expressed on a per-hour basis, lending credence to charges of unfair treatment and exploitation. Inadequate compensation may increase the need for some part-time faculty to seek employment outside of the institution and may not be in the best interests of either the individual or the institution. In addition, part-time faculty clearly are concerned about their lack of benefits. If higher education institutions continue to rely heavily on part-time faculty, they must explore alternative benefits arrangements to help attract and retain part-time faculty, especially those without established careers outside of academia.

The news is also mixed with regard to the labor market experience of women. The fact that women have higher rates of part-time employment than men appears to be driven by their lower educational attainment and experience, as well as a greater preference for part-time academic work. On the whole, the institutional salaries of part-time women compare favorably to those of part-time men. On a per-hour basis, part-time women received institutional salaries 7–10% higher than part-time men. Likewise, part-time women are more likely than part-time men to be satisfied with their institutional salary and are as likely as part-time men to be satisfied with their jobs overall.

In contrast, the findings also reveal that women received institutional salaries 5–6% less than comparable men per hour of work. The gender gap rises to 20% after taking into account all other income sources. While it is true that women on the whole are more likely than comparable men to prefer part-time employment, this gender difference is explained by the fact that married women are 10% more likely than married men to prefer part-time employment. Clearly, family structure places greater constraints on the labor-market choices and earnings of women than of men. Finally, compared to men, women (full-time and part-time faculty combined) are less satisfied with their salary, benefits, and overall job. Even among part-time faculty, women are less satisfied than men with their benefits. These findings challenge colleges and universities to find ways of increasing women's labor supply by working to accommodate women's (and men's) family lives and to address additional inequities by improving the salary and benefits packages of part-time faculty.

## *Notes*

[1] We define "tenure-eligible" faculty as those individuals who are either tenured or on the tenure track. All other faculty are referred to here as "nontenure-eligible" faculty, which would include adjunct faculty and lecturers/instructors who are not tenured or employed in tenure-track positions.

[2] To determine the sensitivity of controlling for tenure-eligible positions when measuring the effect of part-time employment on earnings, we reestimated the models shown in Table 3 after omitting the variable for tenure-eligible positions. We found that the differences in base and institutional salaries per hour of work between part-time and full-time faculty increased to 68% and 67%, respectively, and were still statistically significant. However, the results also showed that after removing this variable from the last model, there was no hourly pay difference (all sources of income) between full-time and part-time faculty. To examine whether the effects of gender and employment status varied across institutional types, we grouped institutions into three categories based on Carnegie classifications (research/doctoral, comprehensive/liberal arts, and two-year colleges) and reestimated the hourly wage equations separately for each group. Overall, the findings for gender and part-time employment status do not appear to vary by institutional type (complete results are available from the authors).

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# Faculty Perceptions of Academic Dishonesty

## A Multidimensional Scaling Analysis

One need not search far for evidence that academic dishonesty is ubiquitous in our society. Indeed, newspaper accounts of cheating by students, teachers, and administrators appear on a fairly regular basis, and HBO recently premiered a movie, *Cheaters* (May 20, 2000), based on a Chicago high school's cheating scandal. In the research literature, academic dishonesty has been the subject of research for decades, addressing a wide variety of issues and questions, including what academic dishonesty is, how prevalent it is, who cheats, why students cheat, what the faculty reaction is, and what the institutional response is. For a review of much of this research, see Cizek (1999), Crown and Spiller, (1998), and Whitley (1998).

One of the main issues that emerges from the literature relates to inconsistencies in the definition of academically dishonest behaviors and the lack of consensus and general understanding of academic dishonesty among all members of the campus community. According to Roberts and Rabinowitz (1992), "Our ability to alter the environment in which cheating takes place will be determined by our understanding of how people (both faculty and students) perceive cheating and its seriousness" (p. 189).

Various attempts have been made to define academic dishonesty. For example, in an August 1993 report published by the United States Department of Education, Maramark and Maline note: "Cheating takes

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many forms–from simply copying another student's paper to stealing an exam paper to forging an official university transcript" (p. 3).

Gehring and Pavela, in a 1994 report on academic integrity to the National Association of Student Personnel Administrators, offer the following definition:

> We regard academic dishonesty as an intentional act of fraud, in which a student seeks to claim credit for the work or efforts of another without authorization, or uses unauthorized materials or fabricated information in any academic exercise. We also consider academic dishonesty to include forgery of academic documents, intentionally impeding or damaging the academic work of others, or assisting other students in acts of dishonesty. (p. 5)

The definitions and classifications that have been attempted are broad and ambiguous. Most people agree that cheating is unethical (Barnett & Dalton, 1981), and yet there remains some confusion about what particular behaviors constitute academic misconduct. Some forms of academic dishonesty are apparent to everyone: plagiarism, copying from someone else's exam, purchasing term papers, stealing a test, or forging a university document. Other more questionable forms of academic behaviors are still debated among faculty, students, and administrators: collaborating on homework and take-home exams when individual work is specified, handing in the same work for two separate classes, or inappropriately utilizing the services of a tutor or a writing center (Fass, 1986).

Even plagiarism, which most people describe as academically dishonest behavior, is sometimes controversial. For example, Miller, in an article in the *Chronicle of Higher Education* (1993), argues that plagiarism may not be universally understood, and teachers cannot assume that every student comes into the classroom with the same belief system.

Russell Baker, in an op-ed article in *The New York Times*, offers another example of unintended plagiarism:

> Charges of plagiarism, which have become so common lately, may well be the fault of the computer instead of the author. That's because volumes of research material from other people's work get stored in the electronic file along with the manuscript in progress. The author searching his index for an appropriate citation finds a file name for stuff he stored up a year or two ago, presses a couple of keys and–shazam!–like magic, another author's paragraph is inserted whole into the manuscript, its attribution lost somewhere down the cracks in the electronic floorboards. (1995, p. A25)

In addition to the general problem of ambiguity of definition, differences exist among the various studies as to the assessment of severity of the various indicators of academic dishonesty (e.g., Cannon, Fox, &

Renjilian 1998; Franklyn-Stokes & Newstead 1995; Graham, Monday, O'Brien, & Steffen, 1994; Nuss, 1984; Roig & Ballew, 1994; Sims, 1995). One potential explanation for these differences could be due to the different scales used by the researchers. For example, Cannon et al. (1998) used a 5-point rating scale, with 1 indicating that the depicted scenario was definitely not representative of academic dishonesty, and 5 indicating that it definitely was. Graham et al. (1994) used a 4-point scale, with 1 = "not cheating" and 4 = "very severe," whereas Sims (1995) used a 6-point scale, ranging from not at all dishonest to very severe. Nuss (1984), on the other hand, used a forced-choice ranking system whereby respondents ordered the 14 presented behaviors from most serious to least serious. It is not surprising, therefore, that differences emerged in the particular ordering of the behaviors on the various continua.

The purpose of the present study was to focus specifically on faculty in an attempt to uncover some of their underlying perceptions and to gain a better understanding of how they conceptualize academic dishonesty. Specifically, do faculty conceptualize academically dishonest behavior on a single dimension or on multiple dimensions, and what is the nature of these dimensions?

Moreover, given the ambiguity that exists in the definitions, the choice of the analytic method–multidimensional scaling (MDS)–was particularly important, because it was desired to utilize a methodology that does not automatically constrain the results to a single dimension and allows for multiple dimensions to emerge. In addition, it does not impose the researchers' a priori conceptions of the relevant dimensions. MDS (for discussions of various MDS methods and their assumptions, see, for example, Davison, 1983; Kruskal & Wish, 1978; Schiffman, Reynolds, & Young, 1981) is a set of methods that attempt to uncover perceptions or cognitions of a stimulus set in a relatively unconstrained fashion. In the present research, the advantage of utilizing MDS was that it yielded information from the faculty on their underlying perceptions of the academic behaviors with little constraint or bias from the researchers. For example, if faculty were asked a priori to rate each illustration of academic dishonesty on how serious they perceive it to be, then it is possible that the scale provided (seriousness, in this example) may predetermine faculty members' perceptions and responses. Moreover, rating a set of stimuli on a single rating scale may produce a lack of discernable differentiation among the stimuli if all or most of the ratings are concentrated on one end of the rating scale. Thus, with a 7-point rating scale, where the anchors are labeled 1 = "not at all serious" and 7 = "very serious," if respondents view most of the stimuli as being in the very serious end of the scale, the resulting ratings will all be negatively skewed and similar in value, even though the underlying perceptions may be differentiated. The main point is that respondents "may draw on what is supposedly a purely formal feature of the rating scale, namely its numeric values" (Schwarz, 1999, p. 95), and their responses may be influenced and constrained by the nature of the rating scale itself. Another advantage of MDS is that it provides a graphical presentation of the results, thereby making the underlying dimensions more potentially discernible. "In useful or interesting applications, the characteristics we discover in this way are seldom totally unsuspected or surprising. On the other hand, they are usually part of a much longer list of characteristics which might just as plausibly have appeared. One useful role of MDS is to indicate which particular characteristics are important in contrast to others which are just as plausible" (Kruskal & Wish, 1978, p. 35).

## *Method*

### *Instruments*

Two versions of the data collection instrument were developed. One, considered the primary instrument, consisted of pairwise similarity ratings and will henceforth be called the MDS version. The other consisted of bipolar rating scales and will be referred to as the Rating Scale (RS) version. The same list of examples of academically dishonest behaviors (e.g., plagiarizing, taking a test for someone else, using crib sheets) were used in both the MDS and RS versions. The original list of examples based on the research literature was reviewed by several faculty, administrators and students to verify that a thorough and representative list was generated. From the feedback received, modifications to the list were made, and the final list contained 28 behaviors. The complete list appears in Table 2.

Both the MDS and RS versions of the instrument contained the same background sections. The background portion included a demographic section that requested information such as school, level of primary teaching (graduate or undergraduate), tenure status, and sex. In addition, a section on incidents that a faculty member may have encountered was presented, followed by a section on policy concerns.

*MDS version.* In the MDS version, pairwise ratings of the 28 examples of academic dishonesty were requested of the respondents. This required them to use their own frame of reference to "judge the similarity of the behaviors in each pair" on a scale of 1 (very different) to 9 (very similar). For example:

Very Different Very Similar
plagiarizing
1 2 3 4 5 6 7 8 9
failing to report a grading error

With 28 stimuli, 378 pairs were constructed. These were developed according to a maximally efficient ordering of the pairs as derived by Ross (1934). This ordering ensures separation of the stimuli and also their placement (in the first or second position of a pair). Asking respondents to complete 378 pairwise similarity comparisons would have been too time consuming and onerous a task. Therefore, the 378 ordered pairs were systematically assigned to four forms labeled A, B, C, and D. Forms A and D had 95 pairs, and forms B and C had 94 pairs. Although the specific pairs were not identical, the four forms could be considered equivalent with each stimulus appearing between five and eight times on each one of the forms.

*RS Version.* In order to externally validate the interpretation of the MDS analysis, 10 bipolar rating scales (seriousness, minor vs. major violation, effect of student intent on faculty response, flexibility, ease of detection, difficulty of proving, clear example, firm versus lenient sanction/resolution required, should a notation be placed on the transcript, formal versus informal resolution) were developed based on characteristics that have previously been identified in the literature. As is typically done in MDS interpretations (e.g., Davison, 1983; Kruskal & Wish, 1978; Schiffman et al., 1981), unidimensional rating scales can be thought of as exploratory "hypotheses" of the important attributes in the dimensional space and are used to "'objectify' the process of naming [the] dimensions, or to 'verify' the names used by the researcher" (Schmelkin, 1985, p. 227).

Participants were asked to rate each of the behaviors using a 9-point scale. Using the first scale of seriousness as an example:

Not Serious Very Serious
1 2 3 4 5 6 7 8 9 plagiarizing

Requiring ratings of each of the 28 behaviors on the 10 scales would have yielded a total of 280 ratings per respondent. Once again, in the hopes of alleviating respondent fatigue, two bipolar forms were created, each containing five scales. Consequently, faculty only had to complete 140 ratings.

### *Sample and Procedures*

The study was conducted at a private university in the Northeast enrolling 12,000 students, approximately 7,000 of them full-time undergraduates. About 1,000 faculty members are active during any given semester, half full-time and half adjuncts. From the pool of active faculty, 150 full-time faculty and 150 adjunct faculty were randomly selected to participate in the study, for an initial sample of 300. The 300 faculty members were randomly assigned to receive one of four MDS forms or one of two RS forms with 25 full-time and 25 adjunct faculty receiving each form.

Following mail survey procedures outlined in Dillman (1978), three complete mailings were conducted, with the two follow-ups occurring at three weeks and seven weeks after the original mailing; a reminder postcard was sent one week after the original mailing. The complete mailings included: (a) one of the six instruments in booklet form, (b) a personalized cover letter explaining the project, (c) a postage-paid return envelope, and (d) a postage-paid return postcard.

Faculty were guaranteed anonymity as no identification markings were placed on the instruments or the envelopes. In order to be able to send follow-up mailings to those who did not respond, a separate response postcard was utilized. Faculty were instructed (in the cover letter) to return the postcard when they completed the questionnaire so that they would be removed from the follow-up list.

### *Response Rate and Final Sample*

Of the 300 instruments originally mailed, 72% (216) were returned, and 71% (212) were usable. Of the 212 useable instruments returned, the breakdown by form was similar, as were the response rates by faculty status. Of those who responded, 48% (102) were full-time faculty, 45% (96) were adjunct faculty, and 7% (14) did not indicate their status. There were 63% (133) males, and 36% (77) females. Of the overall sample, 77% (161) primarily taught undergraduate classes. The mean number of years teaching was 16.33 (*SD* = 11.90). Comparisons of the final sample with the complete faculty census information at the time of the data collection revealed that the sample was representative based upon the variables studied (e.g., status, sex, rank, teaching emphasis, tenure, division or school affiliation).

## *Results*

The primary data set for the MDS analysis consisted of a super mean matrix. Prior to generating this matrix, differences between various subgroups (e.g., based on sex, status) were explored. One-way analysis of variance results indicated that there were no major differences based on full-time/adjunct status, sex, primary teaching emphasis, tenure status, rank, or division. Consequently, the means from all the pairwise similarity ratings across the four forms were collected into one super mean matrix.

This 28 x 28 (stimulus by stimulus) lower-half mean matrix constituted the raw input into the MDS analysis. Using the ALSCAL procedure of SPSS with ordinal symmetric similarity data, solutions were sought for one to six dimensions. Decisions as to appropriate dimensionality in MDS were made on both statistical, as well as substantive, interpretive grounds. The statistical indices used were the Stress, S-stress, and RSQ values. The first two are badness of fit measures, with lower values indicating better solutions. RSQ, on the other hand, indicates the proportion of variance in the data accounted for by the solution. An examination of these values (see Table 1) indicated that there appeared to be improvements in fit as dimensionality increased from 1 to 2, and perhaps 2 to 3, with subsequent leveling off beyond 3 dimensions. Therefore, the 2- and 3-dimensional solutions were examined in more detail in order to determine which was more appropriate from a substantive standpoint.

When reviewing the 2- and 3-dimensional solutions in detail, it was noted that the 3-dimensional solution did not appear to add very much more substantively. In fact the third dimension was not interpretable, and the first two were substantially the same as the two dimensions of the 2-dimensional solution. Therefore, the 2-dimensional solution, accounting for 82% of the variance, was retained as most appropriate. Figure 1 presents the solution graphically, whereas Table 2 provides a complete listing of the stimuli, their corresponding abbreviations on the figure, and the actual coordinates. In interpreting the dimensions, an internal examination is presented first, followed by an external validation.

TABLE 1

Goodness/Badness of Fit Indices for the MDS Solutions

| # Dimensions | Stress | S-stress | RSQ |
|---|---|---|---|
| 6 | 0.129 | 0.084 | 0.923 |
| 5 | 0.152 | 0.101 | 0.905 |
| 4 | 0.175 | 0.119 | 0.888 |
| 3 | 0.212 | 0.158 | 0.857 |
| 2 | 0.254 | 0.210 | 0.819 |
| 1 | 0.299 | 0.310 | 0.748 |

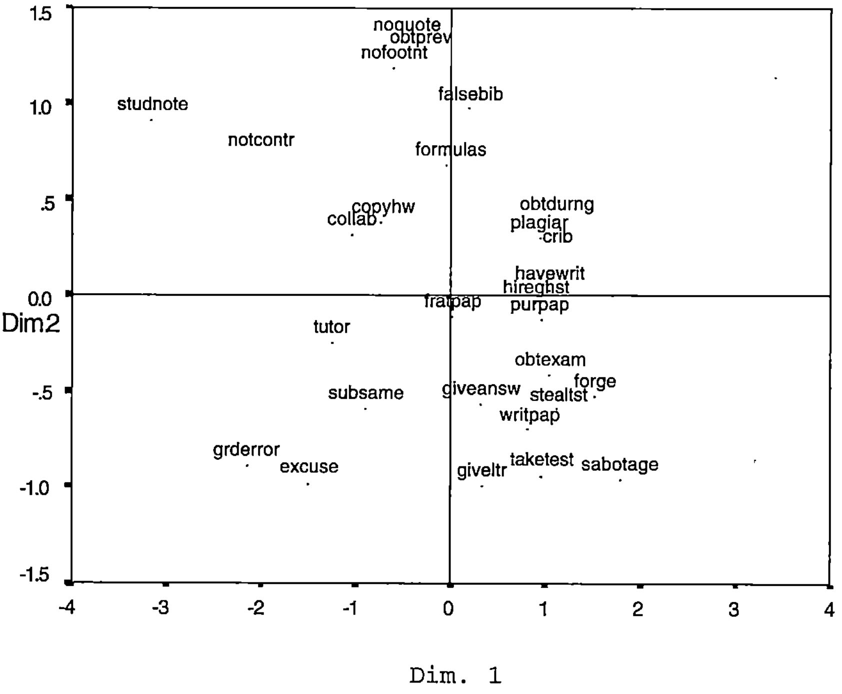

FIG. 1

### *Dimension 1*

Behaviors such as "sabotaging someone else's work," "forging a University document," "stealing a test," "using crib sheets," and "obtaining answers from someone else during an exam" anchor one end of the dimension or continuum. At the other extreme are "studying from someone's notes," "failing to report a grading error," "not contributing a fair share to a group project," "delaying taking an exam or turning in a paper due to a false excuse," and "utilizing a tutor or writing center inappropriately."

This dimension was labeled Seriousness. At one end of the continuum are behaviors that faculty code as severe and that are clearly considered academically dishonest behaviors with some bordering on illegal. At the other end of the continuum are those behaviors that are perceived as being less severe. Looking at Figure 1, it is clear that the stimulus "studying from someone else's notes" is not considered a serious violation. In fact it is not considered an academically dishonest behavior at all by many of the respondents.

Examining the behaviors that fell in the middle range of the continuum

TABLE 2
Stimulus Listing and MDS Coordinates

| Academic Behavior | Abbrev. | Dim. I | Dim. 2 |
|---|---|---|---|
| collaborating with others on an assignment that was assigned as individual work | collab | –1.0348 | 0.3221 |
| copying homework | copyhw | –0.7275 | 0.3788 |
| copying information without utilizing quotation marks | quote | –0.4589 | 1.3288 |
| copying material without proper footnotes or citations | footnt | –0.5973 | 1.1805 |
| delaying taking an exam or turning in a paper due to a false excuse | excuse | –1.4964 | –0.9800 |
| failing to report a grading error | grerror | –2.1533 | –0.8934 |
| falsifying or fabricating a bibliography | biblio | 0.1905 | 0.9695 |
| forging a University document | forge | 1.5256 | –0.5299 |
| giving answers to someone else during an exam | givans | 0.3100 | –0.5699 |
| giving exam questions to students in a later section | givexam | 0.3327 | –0.9959 |
| having someone else write a term paper for you | havewrit | 1.0361 | 0.0292 |
| hiring a ghostwriter | hireghst | 0.8976 | –0.0376 |
| inputting information or formulas needed for an exam into a calculator | formula | –0.0343 | 0.6773 |
| not contributing a fair share in a group project | notcont | –2.0186 | 0.7301 |
| obtaining a copy of the exam to be given prior to class | obtprior | 1.0465 | –0.4143 |
| obtaining a test from a previous semester | obtprev | –0.3354 | 1.2590 |
| obtaining answers from someone else during an exam | obtdur | 1.1009 | 0.4000 |
| plagiarizing | plagiar | 0.9288 | 0.3000 |
| purchasing a term paper to be turned in as one's own | purpap | 0.9507 | –0.1309 |
| sabotaging someone else's work (on a disk, in a lab, etc.) | sabotage | 1.7820 | –0.9611 |
| stealing or copying a test | steal | 1.1298 | –0.6007 |
| studying from someone else's notes | studnote | –3.1690 | 0.9129 |
| submitting the same term paper to another class without permission | samepap | –0.8971 | –0.5948 |
| taking a test for someone else | taketest | 0.9614 | –0.9447 |
| using crib sheets | crib | 1.1271 | 0.2284 |
| utilizing a term paper or exam from a fraternity or sorority test file | ftatpap | 0.0277 | –0.1117 |
| utilizing a tutor or writing center inappropriately | tutor | –1.2454 | –0.2490 |
| writing a term paper for someone else | writpap | 0.8205 | –0.7000 |

is also interesting. These behaviors are seen by some as serious, while others disagree. An example is the stimulus that fell right at the center of the graph, "utilizing a term paper or exam from a fraternity or sorority test file." Using previous exams has been viewed by some as cheating, while other professors may even encourage this type of behavior as an excellent study tool.

In order to validate the internal interpretation of the dimension presented above, the bipolar rating scales were used as a method of external validation. Means on each of the 10 bipolar scales were computed. As in the case of the pairwise similarity ratings, tests were performed on these means which indicated that there were no statistically significant differences between subgroups. Therefore, means over all individuals within the groups were collapsed by form. Each of the 10 means was regressed on the coordinates of the 2-dimensional MDS solution. The results of these analyses are summarized in Table 3, which presents the multiple correlations (*R*) and the optimum weights corresponding to each. The latter "are the direction cosines, that is, regression coefficients normalized so that their sum of squares equals 1.00 for every scale" (Kruskal & Wish, 1978, p. 37). In order to be useful in interpretation, *R* values greater than 0.90 are desired, although values of 0.70 are often used; $p$ should be $\leq 0.01$. In addition, the coefficients should be large for at least one of the dimensions (Kruskal & Wish, 1978).

Of the 10 scales, 7 have high *R* values of 0.88 or above and are therefore highly interpretable. These scales are seriousness, major vs. minor violation, formal vs. informal resolution, degree of flexibility (when the situation is encountered), clarity, firm vs. lenient sanction required, and whether a notation should be placed on the transcript. For each of the scales, there is a high coefficient corresponding to the first dimension.

The 7 scales seem very interrelated and focus on both the nature of the behavior itself (whether it can be viewed as serious, is a major violation, and is a clear example of academically dishonest behavior) as well as the sanctions or consequences that faculty deem are appropriate. It is understandable that serious behaviors are identified as being clear unambiguous examples and are considered major violations, where a formal, firm

TABLE 3

Multiple Regression of Bipolar Scale Ratings on Dimensions of Perceptions of Academic Dishonesty

| Rating Scales | Regression Weights (Direction Cosines) Dimension 1 | Regression Weights (Direction Cosines) Dimension 2 | Multiple Correlation (*R*) |
|---|---|---|---|
| Not at all serious/Very serious | 0.97 | −0.24 | 0.89* |
| Minor violation/Major violation | 0.98 | −0.22 | 0.92* |
| Mostly informal (resolution needed)/Formal | 0.84 | −0.30 | 0.90* |
| Intent (of student) does not affect me/ Intent affects me | −0.99 | 0.14 | 0.58* |
| No flexibility (if extenuating circumstances)/ A great deal of flexibility | −0.95 | 0.32 | 0.94* |
| Very difficult to detect/Very easy to detect | 0.92 | 0.39 | 0.37 |
| Very difficult to prove/Very easy to prove | 0.80 | 0.60 | 0.33 |
| Unclear (example of academic dishonesty)/Clear | 0.97 | −0.23 | 0.88* |
| Lenient (resolution or sanction)/Firm | 0.99 | −0.16 | 0.95* |
| Should never be noted on transcript/ Should always be noted on transcript | 0.98 | −0.18 | 0.95* |

*$p < 0.01$.

means of resolution would be sought, including a notation on the transcript. These behaviors would allow for little flexibility when resolutions are sought.

### *Dimension 2*

Turning now to the second dimension, it is not as clearcut. However, it does appear that there is a comparison of behaviors having to do with papers and homework, with "copying information without using quotation marks," "copying material without proper footnotes," "falsifying or fabricating a bibliography" anchoring one end of the dimension. At the other extreme are behaviors that are related to exams in the classroom, such as "failing to report a grading error," "delaying to take an exam or hand in a paper due to a false excuse," "giving exam questions to students in a later section." This dimension is therefore interpreted as Papers vs. Exams.

The bipolar rating scales were not useful in helping to shed more light on dimension number two. The lack of external validation suggests that for this interpretation, other more appropriate rating scales may need to be utilized in future research.

## *Discussion*

The multidimensional scaling analysis coupled with the external validation (bipolar rating scales) indicated that faculty perceive academically dishonest behaviors on two dimensions: a clear-cut continuum of Seriousness and a somewhat more ambiguous Papers vs. Exams dimension. No differences in faculty perception of academic dishonesty were found due to full-time/adjunct status, sex, rank, tenure status, primary teaching emphasis, and/or division.

That academically dishonest behaviors are perceived on a continuum of seriousness is consistent with others findings in the literature, although the specific ordering may differ (e.g., Cannon et al., 1998; Franklyn-Stokes & Newstead 1995; Graham et al., 1994; Nuss, 1984; Roig & Ballew, 1994; Sims, 1995). This finding validates the notion that faculty do not perceive academic dishonesty dichotomously as an all or nothing situation. Rather, faculty view the various potential indicators of academic dishonesty on a continuum of severity, which for faculty is related to the clarity of the definition. It is important to underscore that in the primary MDS analysis this dimension emerged without its explicit stipulation. That is, faculty were not asked to directly rate or compare the behaviors in terms of their seriousness. Such comparisons may have raised the possibility that the subsequent results were constrained by the researchers' a priori conceptions. Instead, faculty's internal representations of academic dishonesty emerged from the analyses.

Given the different methodology utilized, it is noteworthy that there is some congruence between the current findings and those found in the research literature in terms of which behaviors are viewed as most serious. For example, Sims (1995) found that the most serious behaviors were using someone else's paper, taking an exam for someone else, asking someone to take an exam, purchasing a paper, and using crib sheets during an exam. Nuss (1984) found that copying during an exam, paying someone to write a paper, and using signals during an exam were seen as most serious. For faculty in the Graham et al. (1994) study, the most serious behaviors were taking a test for someone else, copying a term paper, having someone else write a paper, and copying during an exam. And in the Lipson and McGavern (1993) study, it was cheating during an exam and submitting someone else's work. Similarly, less serious behaviors generally focus on not contributing a fair share in a group project, giving false excuses, and submitting the same paper to two or more classes (e.g., Graham et al., 1994; Lipson & McGavern, 1993; Nuss, 1984; Sims, 1995).

Although less clear-cut and not substantiated by the rating scale analyses, there is also some corroboration from the research literature for the second dimension, which appears to distinguish between exam-related behaviors and paper-related behaviors. In their discussion of the complexity of the definition of academic dishonesty, Newstead, Franklyn-Stokes, and Armstead (1996) referred to the separation of coursework (which includes paper assignments) and exam cheating. The seriousness dimension enters into this separation, for exam-based cheating was generally seen as more serious than coursework-based cheating (Ashworth, Bannister, & Thorne, 1997; Franklyn-Stokes & Newstead, 1995; Nuss, 1984). This was especially so for students' perceptions.

Our own preliminary research into students' perceptions of academically dishonest behaviors has yielded results that are consistent with what has been found with the faculty, although some differences did emerge (Schmelkin, Spencer, Gilbert, Lieberman, & Pincus, 1999). Students also perceived the behaviors in two dimensions, one focusing on seriousness, and the other differentiating between exam-based and paper-based cheating. The differences between the faculty and the students were in emphasis. Although there is general agreement on what are perceived to be less serious offenses, some behaviors that are not considered that serious by students (e.g., "sabotaging someone else's work") are considered very serious by faculty.

Most universities have developed guidelines and policies about academic dishonesty, which often include examples of cheating. Unfortunately, the examples are typically limited to behaviors that have been commonly agreed upon as representing academic dishonesty (e.g., using crib sheets, plagiarizing, copying from another student during an exam). What consistently has been missing from these lists of examples have been the ambiguous behaviors. It is clear from the present data and from the literature that not all cheating behaviors are viewed alike. Further, differences exist between different constituencies (e.g., faculty, students) in their views. It is not surprising, therefore, that "problems with definition often lead to inconsistent application of penalties (ranging from reprimand to expulsion) leaving students confused about what specific activities constitute cheating or believing that less serious forms of cheating are acceptable" (Maramark & Maline, 1993, p. 7).

In addition, most policies do not take into account the fact that faculty's views about these issues are complex and that they see the behaviors on various continua. When considering whether the response should be educational or punitive, there is usually no consideration of where the particular behavior "falls" on the continuum of seriousness. This lack of flexibility in many policies might be a contributing factor in understanding why faculty members may feel reluctant to report a student who they believe is involved in a less serious incident.

Our findings suggest there is a strong interplay between whether academically dishonest behaviors are seen as major violations and the severity of the sanctions that should be imposed. It is probably safe to conclude that faculty would prefer that sanctions be applied differentially depending on the severity of the behavior. We, therefore, recommend that policies be made more explicit as to differential sanctions.

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# Alumni Perceptions Used to Assess Undergraduate Research Experience

## Introduction

Along with a rapid increase in government funding for academic research in the 1960s came concerns that research activities of faculty in American universities were becoming not only increased, but separated from, and elevated far above, their teaching. Clark Kerr (1963) influentially warned against the development of the "federal grant university," and it became widely argued that there exists an inherent conflict between research and education (Sample, 1972). Over the decades, several national reports and academic publications urged greater attention to undergraduate teaching (Astin, 1977; Boyer, 1987). In the world outside of academia, citizens and their legislators sometimes reduced the discussion to counting the number of hours per week spent by faculty in the university classroom (Cage, 1991).

At the same time, defenses of the research endeavor were mounted to argue not only that academic research is important in itself, but also that researchers make good teachers (Abelson, 1967; Jencks & Riesman, 1968). Attempts were made to validate these claims by studying such subjects as relationships between faculty research productivity and stu-

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dent course evaluations (Feldman, 1987; Hoyt & Spangler, 1976). Unfortunately, the initial positing of a conflict between research and teaching had an effect contrary to that intended by those who were calling for reform. The need to defend and uphold the research endeavor itself diverted the potential agents of educational change—the faculty and leadership of research universities—away from re-envisioning the undergraduate experience. As a result, although many faculty-driven inquiry-learning experiments have been initiated (Duch, Groh, & Allen, 2001; Monk-Tutor, 2000; Rhem, 1998), basic structures and methods of undergraduate instruction in the nation's research universities have remained largely unchanged.

### *Integrating Research and Education: Undergraduate Research*

The publication in 1998 of the report of the Boyer Commission in effect announced a fundamental shift in the decades-old discussion of "research vs. teaching." The Boyer Report's immediate forerunner was a competition sponsored by the leadership of the National Science Foundation inviting America's research universities to apply for a new kind of grant, a "Recognition Award for the Integration of Research and Education (RAIRE)." Acknowledging that NSF's own portfolio "divide[d] rather clearly into research . . . on the one hand, and . . . education . . . on the other," the Foundation wanted to reshape the old debate (Lane, 1996). Aimed to dislodge the old phrase "research vs. teaching" was the new call for "integrating research and education (IRE)"; IRE has been offered to the U.S. Congress and the public as a "core strategy" of the Foundation itself and for education nationally (National Science Foundation, 1999; National Science Foundation, 2000). IRE is intended, without reducing universities' commitment of faculty effort and of governmental and institutional resources to research, to turn that very research activity into an advantage for the education of undergraduate students who attend such universities.

*Reinventing Undergraduate Education,* the report produced shortly thereafter by the Boyer Commission, was designed to be a guide, a "blueprint" for the way forward into IRE. The way toward "reinvention," the report says, is to "make research-based learning the standard" for undergraduate education at research universities (Boyer Commission, 1998, pp. 15–16). Historically, research and education have been closely integrated for undergraduates who collaborate with faculty to conduct research, and this practice underlies the "model" that the Boyer Commission proposes, with "scholar-teachers" who "would treat the sites of their research as seminar rooms in which not only graduate students but undergraduates observe and participate in the process of both discovery and communication of knowledge" (Boyer Commission, 1998, p. 18). Undergraduate research is now held by many academics in the sciences and engineering as the touchstone against which other efforts at IRE should be judged (National Science Foundation, 1989).

### *Assessment of Student Learning Through Undergraduate Research*

However, claims for the special educational efficacy of undergraduate research are somewhat suspect, as reflected in this newspaper headline: "Research by Undergraduates Proliferates, But Is Some of It Just Glorified Homework?" (Reisberg, 1998). This article points out that the pressure on universities to offer undergraduate research programs is not only political and ideological, but also economic, as the ability to offer undergraduate research experience is perceived to give an institution "an edge in recruiting" (Reisberg). It would be helpful for faculty and administrators, as well as the general public, to know whether the considerable costs of undergraduate research programs, both in funds and in faculty time, can be justified in terms of value added to the education of the undergraduates who participate in these programs. If other efforts to integrate research and education are to take the presumed benefits of the undergraduate research experience as their goal, it would be good to identify what these benefits are and, if possible, to document their existence.

Before the late 1980s, only a few universities had committed significant resources to institution-wide undergraduate research programs that involved the institutions' faculty in regular research collaborations with undergraduates. The first institution-wide program was founded by the late Margaret L. A. MacVicar at MIT in 1969 (http://web.mit.edu/urop). Additional research universities with early institution-wide programs were Stanford (http://uro.stanford.edu/uro), Cal Tech (www.its.caltech.edu/~surf) and the University of Delaware (www.udel.edu/UR). Student and faculty participants in undergraduate research at these and other institutions frequently report high levels of satisfaction with learning achieved by undergraduates through collaborative research with faculty (Hakim, 1998; Mabrouk & Peters, 2000; Manduca, 1997); however, efforts at formal assessment of learning outcomes attained through the undergraduate research experience are just beginning.

One approach has been to ask participants in intensive summer research experiences to rate their learning of specific research skills, e.g., literature review, research design, data collection, statistics/computer, scientific writing (Kardash, 2000; Kremer & Bringle, 1990). However, the focus on assessing research-specific skills is somewhat limiting if the undergraduate research experience is to be taken as a model for other forms of IRE, where the goal is not primarily to produce professional scientists but to increase the development of a broad range of cognitive and personal abilities in all undergraduates. Further limitations in these approaches have included small sample size (22 psychology students in Kremer & Bringle, 57 science students in Kardash) and the absence of a control group (Kardash).

Graduate school attendance rates have been examined in earlier studies for which the question has been whether a research experience affects undergraduates' decisions to pursue graduate study in science and engineering (Kremer & Bringle, 1990), especially for underrepresented minorities (Alexander, Foertsch, & Daffinrud, 1998; Foertsch, Alexander, & Penberthy, 1997). Although pursuit of graduate study is a desired outcome for talented undergraduates, studies that use data concerning graduate school attendance to demonstrate value added by the undergraduate research experience have been hampered by failures in their research designs that left them unable to demonstrate that undergraduate research experiences were the cause of continuance to graduate school (De La Garza, Anderson, & Lee, 1991; Fortenberry, 1990; Mabrouk & Peters, 2000; Manduca, 1997; Sabatini, 1997; Strassburger, 1995).

In a study of an undergraduate research program for first- and second-year underrepresented minority students, Nagda, Gregerman, Jonides, von Hippel, and Lerner (1998) did demonstrate that this program succeeded in increasing retention rates for some students, especially African American sophomores. A methodological strength of this study was its use of students who had applied to the program but had to be denied admission due to funding limitations; these students were assigned at random to a control group. However, this undergraduate research program's focus on minority student retention limits its applicability to institution-wide programs.

In designing an assessment, it is desirable to match a comparison group of students who have not participated in undergraduate research to a group of undergraduate research participants to be studied. However, it may not be desirable to limit the number of applicants who can benefit from an educational program in order to create a control. Another way to identify a comparison group for participants in a voluntary educational program such as undergraduate research is to study alumni, matching a set of program participants to a set of individuals who resemble the participants except for the fact that they did not participate in undergraduate research.

Alumni studies have traditionally been used primarily for fund raising from alumni and development of alumni associations. However, colleges and universities are increasingly calling upon alumni to "provide critical assessments of the institution's performance in preparing students to lead productive and rewarding lives," and it is now recognized that there is a "vast alumni research domain to be explored" (Pettit & Litten, 1999, p. 1). Alumni opinions of their undergraduate achievements have been found to correlate well both with their perceptions of these achievements as undergraduates and with faculty opinions about those same achievements (Pace, 1979). Thus, alumni judgment of undergraduate experience can be an accurate measure of undergraduate achievement. A further advantage of studying undergraduate research alumni is that informants will not be tempted, as they might have been while students, to try to ensure continued funding for their research scholarships by skewing their comments in an effort to present the most favorable possible picture of the program. In addition, alumni have a perspective on their undergraduate experience provided by their years of graduate study and/or employment, as is recognized by faculty, for whom alumni surveys generally hold high credibility (Banta, Lund, Black, & Oblander, 1996).

### *Research Questions*

The purpose of the present study was to develop a methodology and instrument that could reliably use alumni perceptions as one measure of the value added by the undergraduate research experience to baccalaureate education. To assess the effectiveness of undergraduate research as a vehicle for IRE, answers were sought to the following research questions:

1. How do alumni value undergraduate research in comparison to other out-of classroom educational experiences? And, a related question, does a commitment to undergraduate research limit participants' involvement in other aspects of undergraduate curricular and co-curricular activity?
2. Do alumni with undergraduate research experience perceive themselves to have attained higher levels of important general cognitive and personal abilities and skills than comparable alumni with no undergraduate research experience perceive themselves to have gained from their undergraduate education? In addition, do undergraduate research alumni express higher overall satisfaction with their undergraduate education than that expressed by comparison alumni?

3. When examined for differences by research participation, do results differ according to field of study or gender? Most previous studies have been conducted in the sciences; however, benefits of IRE should pertain to all disciplines at a research university. Female undergraduates involved in scientific research have reported lower confidence than male students in their ability to formulate a research question (Kardash, 2000). From their perspective as alumnae, do women with research experience show the same levels of self-confidence in higher cognitive skills as men with research experience?
4. Does the length of time spent on undergraduate research activities affect the perceived benefit of the research experience? The related policy question is whether students' research experiences could be planned for shorter periods, such as one semester, so as to accommodate more student participation without subtracting significantly from the benefit of the experience to the participants.
5. Does undergraduate research experience increase the likelihood of students' pursuing graduate study and successfully completing doctoral degrees? The answer to this question is of particular interest to potential financial sponsors of undergraduate research programs, especially in high-need areas of engineering and the sciences and in efforts targeted at women and underrepresented minorities.

### *Method and Instrument*

A survey was mailed in Spring 1998 to 2,444 alumni of the University of Delaware, a mid-sized, research-extensive university that has operated a formal, institution-wide undergraduate research program since 1980. Because of its long-established Undergraduate Research Program (URP) and a related, institution-wide practice of problem-based classroom learning, this University received one of the National Science Foundation's ten RAIRE awards.

### *Characteristics of the Undergraduate Research Program*

Undergraduate research at the University of Delaware is defined as "collaboration" between undergraduates and their faculty research sponsors. This means that faculty must give undergraduate researchers a significant role in all phases of the research process. Although undergraduate research students are not exempted from performing the relatively low-skilled tasks of a technician, they must also experience a steady progression in their abilities to develop a research hypothesis, design and carry out an investigation and analysis of results, contextualize their work within the scholarly literature, and present their work orally and in writing.

Undergraduate Research Program services, which are open to all interested undergraduates, include maintenance of a directory of faculty research projects inviting undergraduate involvement, initial advisement of students and referral either directly to potential faculty mentors or to a faculty liaison in their major department. Consultation is available for new faculty on involvement of undergraduates in their research. The Undergraduate Research Program provides supply-and-expense funding for collaborations, summer research scholarships for students, numerous opportunities for students to present ongoing work, and a university-wide senior thesis program through which students prepare a research proposal, make oral presentations of research-in-progress to other students and faculty, establish a formal thesis committee, and give an oral defense of their thesis.

Over 66% of the University's approximately 950-member faculty regularly participate in undergraduate research, including over 90% of the faculty in the sciences and engineering. From 600 to 700 students are estimated to be engaged in undergraduate research at any one time. Students can begin research at any point in their undergraduate careers; however, normal starting time is mid-sophomore year. Student involvement generally lasts for one to two or more calendar years, usually including one or more summer or winter terms in addition to the academic semesters. Students are advised that they should plan to be involved in research for at least a year even though their commitment is made one term at a time. During the academic year, students usually register for academic credit as undergraduate researchers, although those with financial need can earn work-study money doing undergraduate research. During the summers and, for some students, the five-week winter session, about 200 full scholarships and 20–30 additional partial scholarships, in addition to salaries paid by faculty, enable full-time or a substantial amount of time for work on research.

### *Selection of the Sample*

The 2,444 alumni surveyed for this study included 865 graduates of the Undergraduate Research Program (URP), each of whom was matched as closely as possible with two alumni who shared the same academic major, year of graduation and cumulative grade point average but were not recorded in the URP database. The URP database contained records of individuals who were known to have conducted undergraduate research and to have received some service from the URP, ranging from an initial advisement meeting, to funding, to production of a senior thesis. Alumni surveyed were from the graduating classes of 1982 through 1997.

### *Content of the Survey*

Respondents were asked to reflect upon a large set of questions about their undergraduate experience. There was no indication, either in the survey itself or in the accompanying letter from the university president, that one of the research questions motivating the survey concerned the evaluation of undergraduate research or the URP.

The four-page survey instrument was developed by a team of faculty who were experienced with undergraduate research in various engineering, science, and humanities disciplines. The survey asked respondents to indicate the number of terms they had participated in a variety of campus and community activities (e.g., intramural sports, employment on and off campus, study abroad, honors classes, undergraduate research), their perceived benefit from each activity, and their involvement in graduate study and/or employment since graduation. Respondents were also asked to indicate the level to which 32 skills and abilities that are generally valued outcomes of a baccalaureate education had been enhanced by their years of study at this university (responses were indicated on a 5-point Likert scale with 1 = not at all; 2 = a little; 3 = moderately; 4 = importantly; 5 = extremely importantly). The list of skills and abilities was adapted from a similar list in an unpublished *Albany Alumni Survey* (Office of Institutional Research, 1989). Alpha reliability coefficients for the current survey ranged from 0.665 to 0.913 (for questions related to perceived benefits the alpha coefficient was 0.665; for skills and abilities the coefficient was 0.913; and for the coefficient for overall impressions of the baccalaureate experience the coefficient was 0.742).

### *Respondents*

The first copy of the survey was mailed to respondents in March 1998. Approximately three months later a second copy of the survey was mailed to all identified alumni who had not returned their survey from the first mailing. Responses were received from 996 individuals, 10 of whom did not include identifying information. Ninety-eight surveys were returned because of incorrect addresses. The 986 usable surveys yielded a final response rate of 42%.

Initial analysis of the survey responses revealed a substantial number of alumni who indicated they had participated in research even though they had been included in the comparison group with no research experience. It became clear that the respondents actually fell into three groups: (1) those who had participated in research through the URP and were in that program's database; (2) those who were not in the URP database and therefore had not directly received services from the URP but who identified themselves as having participated in research as undergraduates; and (3) those with no research participation. It was then decided to analyze survey results using a three-way comparison. Initial analysis of the three groups revealed a difference in cumulative grade point average (GPA); therefore, GPA was included as a covariate in all subsequent analyses.

Of the 986 identifiable respondents, 418 were alumni who had participated in research through the Undergraduate Research Program (the "URP" respondents), 213 responded to survey questions about research and were thus self-identified alumni with research experience (the "self-report" respondents), and 355 had had no undergraduate research experience (the "no-research" respondents). Of the total sample, 428 (44%) were men, 558 women (56%). Approximately 95% of the respondents were Caucasian. These demographic figures are consistent with historical averages at this institution for the time period during which most of the respondents had been enrolled.

Seventy-five academic majors were represented; 59% of the respondents had majored in engineering or the sciences, 41% in the arts, humanities, or social sciences. For easier interpretation of any effects due to curricular differences, the 75 majors were classified into three groups: science/engineering, social science, and arts/humanities.

Nearly half of the respondents (46%) had enrolled in at least one honors course; but those who participated in research through the URP had enrolled in an average of 5.4 honors courses, significantly more than self-report research (average 3.7 courses) and no-research respondents (average 3.5 courses).

### *Undergraduate Activities of the Respondents*

Table 1 lists the mean number of terms in which alumni had participated as undergraduates in the activities listed on the survey. Respondents who reported participation in these activities said they had spent, on average, one semester in study abroad, two semesters in internships, and three to four semesters participating in intercollegiate and/or intramural sports, clubs/performing arts, and employment. Respondents who had not participated in research had worked significantly more hours off campus than had the alumni with self-reported research involvement

($F = 3.20, p = 0.042$). The URP alumni reported having lived on campus longer as well as having participated to a greater extent in student government than the alumni with no research participation. URP alumni reported having spent more terms conducting research than did self-report research respondents.

### *Benefit Gained from Activities*

Alumni respondents also indicated the level of benefit they received from the activities included on the survey. Involvement in undergraduate research, completion of a senior thesis, study abroad, and internship related to major were rated as most beneficial by the total group of respondents. As shown in Table 2, there were some perceived differences related to participation in undergraduate research. These differences were unaffected by gender, major group, honors participation or year of graduation. Univariate analyses of covariance (with GPA as covariate and Bonferroni test of significance) revealed greater perceived benefits from honors classes for URP alumni than for self-reported and non-research alumni. In addition, benefit received from participation in undergraduate research was significantly higher for URP alumni than for those who self-reported research participation. Furthermore, perceived

TABLE 1

Average Number of Semesters Involved in Campus Activities, Adjusted for GPA

| Activity | *M* # semesters URP Research | *M* # semesters Self-Report Research | *M* # semesters No Research |
|---|---|---|---|
| Employed on campus | 4.00 | 3.70 | 3.88 |
| Employed off campus | 3.72 | 3.39[b] | 4.18[b] |
| Studied abroad | 1.10 | 1.15 | 1.23 |
| Intercollegiate sports | 4.23 | 4.86 | 5.00 |
| Intramural sports | 3.93 | 4.08 | 3.81 |
| Clubs, performing arts | 5.45 | 5.14 | 5.03 |
| Student government | 3.78[b] | 2.84 | 2.54[b] |
| Internship related to major | 1.98 | 2.16 | 1.96 |
| Senior thesis | 2.37[b] | 1.60[b] | NA |
| Honors classes | 5.36[a] | 3.69 | 3.50 |
| Undergrad research at university | 3.23[b] | 2.37[b] | NA |
| Lived in campus housing | 5.81[b] | 5.60 | 5.40[b] |
| Community Service | 3.60 | 3.59 | 4.07 |
| Fraternity/Sorority member | 5.34 | 5.34 | 5.18 |

NOTE: Findings for three items should be interpreted cautiously since only a small number of respondents participated in study abroad (195), intercollegiate sports (74), and student government (77).

[a] indicates group is significantly different from other two groups (Bonferroni procedure, $p < 0.05$)
[b] indicates these two groups are significantly different (Bonferroni procedure, $p < 0.05$)

benefit from participation in undergraduate research was even stronger for those URP respondents who completed a senior thesis ($F = 18.87$, $p < 0.001$), compared to the URP alumni who did not complete a thesis.

### *Skills and Abilities Enhanced During Baccalaureate Studies*

Table 3 lists respondents' perceptions of the extent to which skills and abilities were enhanced by their baccalaureate studies. As shown, respondents said that nearly all skills listed on the survey were more than "moderately" enhanced, with highest scores received for becoming intellectually curious, independent, logical thinkers and problem solvers. A multivariate analysis of covariance revealed no significant interactions between research group and gender, major, honors experience, or year of graduation but did reveal main effect differences by research experience.

When comparisons are made between research and non-research respondents for reported level of skills enhanced, significant differences are found for several skills and abilities that are critical components of the baccalaureate curriculum. Not surprisingly, both groups of alumni with research experience reported significantly greater enhancement of

TABLE 2

Benefit By Research Group, Adjusted for GPA

| Activity | *M* Benefit URP Research | *M* Benefit Self-Report Research | *M* Benefit No Research |
|---|---|---|---|
| Employed on campus | 4.05 | 3.90 | 3.89 |
| Employed off campus | 3.54 | 3.69 | 3.75 |
| Studied abroad [c] | 4.49 | 4.52 | 4.50 |
| Intercollegiate sports [c] | 3.61 | 3.72 | 4.22 |
| Intramural sports | 3.37 | 3.58 | 3.56 |
| Clubs, performing arts | 3.97 | 3.82 | 3.90 |
| Student government [c] | 3.43 | 2.85 | 3.11 |
| Internship related to major | 4.59 | 4.55 | 4.44 |
| Senior thesis | 4.65[b] | 3.72[b] | NA |
| Honors classes | 4.30[a] | 3.96 | 3.88 |
| Undergrad research at university | 4.53[b] | 4.18[b] | NA |
| Lived in campus housing | 3.82 | 3.87 | 3.99 |
| Community Service | 3.89 | 3.80 | 3.93 |
| Fraternity/Sorority member | 3.72 | 3.90 | 3.90 |

NOTE: 5 = very strong; 3 = moderate; 1 = very little benefit

[a] indicates group is significantly different (Bonferroni, $p<.05$)

[b] indicates these two groups are significantly different (Bonferroni, $p<.05$)

[c] Findings for three items should be interpreted cautiously since only a small number of respondents participated in study abroad (195), intercollegiate sports (74), and student government (77).

their ability to carry out research than did alumni who had done no research beyond that required for courses. Furthermore, alumni whose undergraduate research had been facilitated by the URP reported significantly higher growth in their ability to carry out research than did the alumni with self-reported research experience. URP alumni reported greater increases than non-research alumni for seven additional items (multiancova with Bonferroni, $p < 0.05$). These include the ability to develop intellectual curiosity, acquire information independently, understand scientific findings, analyze literature critically, speak effectively, act as a leader, and possess clear career goals.

A principal components factor analysis of the 32 skill items yielded four factors that account for 48.7% of the variance in the responses. A multivariate analysis of covariance using the four factors as the dependent variables indicated main effects by research group, gender, and major group, but no significant interactions between research participation and gender, major group, or year of graduation. Among the three research groups, significant differences were found for three of the four factors. These three factors incorporated 19 skills and abilities. The three skills factors are:

(1) Science, math, logic, and problem solving—including the ability to understand scientific findings, understand math concepts, think logically, approach problems creatively, use statistics or math formulas, utilize computing skills, and adapt to changing technology.
(2) Literature, language, and mastery of contexts—including analyze literature critically, know literature of merit in one's field, use foreign language skills, place current issues in historical context, appreciate artistic and creative experiences.
(3) Personal initiative and communication—including the ability to acquire information on one's own, synthesize and use information from diverse sources, solve problems independently, better understand oneself, write, speak, and listen effectively.

The fourth factor, Personal and Social Skills, showed no significant differences by research group. Table 4 shows the findings for skills factors by research group. No main or interaction effects for gender or major group indicates that URP alumni of both genders and from all three major groups perceived significantly greater growth in both their science/math/logic/problem-solving skills and their humanities/verbal skills than did comparable alumni with no research experience. The URP alumni also reported significantly greater enhancement of their

TABLE 3

Skills and Abilities Enhanced at Undergraduate Institution by Research Groups, adjusted for GPA

| | URP<br>*M* | Self Report<br>*M* | No Research<br>*M* |
|---|---|---|---|
| Write effectively | 4.06 | 3.91 | 3.90 |
| Speak effectively | 3.69[b] | 3.43 | 3.31[b] |
| Listen effectively | 3.70 | 3.63 | 3.69 |
| Better understand myself | 3.84 | 3.86 | 3.67 |
| Acquire info on my own | 4.30[b] | 4.16 | 4.08[b] |
| Solve problems independently | 4.14 | 3.99 | 3.98 |
| Act as a leader | 3.59[b] | 3.41 | 3.26[b] |
| Understand ethical implications | 3.33 | 3.28 | 3.29 |
| Cope with conflict | 3.24 | 3.33 | 3.24 |
| Understand scientific findings | 3.54[b] | 3.57 | 3.30[b] |
| Utilize computer skills | 3.55 | 3.45 | 3.33 |
| Carry out research | 4.47[a] | 3.99[a] | 3.44[a] |
| Use statistics or math formulas | 3.19 | 3.28 | 3.17 |
| Understand math concepts | 3.13 | 3.31 | 3.21 |
| Use foreign language skills | 2.65 | 2.46 | 2.72 |
| Appreciate artistic & creative experiences | 3.12 | 2.98 | 3.07 |
| Know literature of merit in field | 3.49 | 3.54 | 3.28 |
| Analyze literature critically | 3.67[b] | 3.46 | 3.28[b] |
| Understand cultural differences | 3.13 | 3.16 | 3.14 |
| Relate well to people of diff. races/culture | 3.25 | 3.38 | 3.31 |
| Strengthen interpersonal relationship skills | 3.69 | 3.56 | 3.72 |
| Maintain openness to new ideas | 3.93 | 3.85 | 3.90 |
| Possess clear career goals | 3.43[b] | 3.16 | 3.08[b] |
| Place current issues in historical context | 3.21 | 3.07 | 3.09 |
| Prepare to be good citizen | 3.12 | 3.00 | 3.17 |
| Work as part of a team | 3.55 | 3.54 | 3.47 |
| Adapt to changing technology | 3.22 | 3.04 | 3.11 |
| Think logically about complex material | 4.04 | 4.00 | 3.93 |
| Approach problems creatively | 3.87 | 3.75 | 3.71 |
| Synthesize & use info from diverse sources | 4.01 | 3.92 | 3.83 |
| Develop intellectual curiosity | 4.24[b] | 4.14 | 4.02[b] |
| Tolerate ambiguity | 3.20 | 3.03 | 3.20 |

NOTE: 5 = extremely; 3 = moderately; 1 = not at all

Based on estimated marginal means

[a] indicates that all three groups are different (Bonferroni, $p < 0.05$)

[b] indicates the groups are significantly different (Bonferroni, $p < 0.05$)

initiative and communication skills than did either the respondents with no research experience or those with self-reported research experience.

## *Effect of Time Spent in Research*

While alumni perceived even one semester's experience in undergraduate research to be very beneficial, responses indicated that in general,

TABLE 4

Skills and Abilities Factor Scores, Adjusted for GPA

| Skill/Ability Factor | URP<br>*M* | Self-Report<br>*M* | No Research<br>*M* |
|---|---|---|---|
| Science/math/logic/problem-solving factor | 3.50[b] | 3.48 | 3.37[b] |
| Literature/language/mastery of contexts | 3.25[b] | 3.14 | 3.02[b] |
| Communication/initiative factor | 3.94[a] | 3.80 | 3.78 |
| Personal/social factor | 3.41 | 3.36 | 3.34 |

NOTE: 5 = extremely; 3 = moderately; 1 = not at all

[a] indicates group is significantly different from other two groups (Bonferroni procedure, $p < 0.05$)
[b] indicates these two groups are significantly different (Bonferroni procedure, $p < 0.05$)

the longer one had participated in research, the greater the perceived benefit (r = 0.330, $p$ <.01). For example, the mean benefit for those respondents who had been involved for one semester was 3.94; for two semesters it was 4.24; for six semesters it was 4.74, and for eight semesters the mean benefit was 4.90 (1 = not at all important; 3 = important; 5 = extremely important). URP alumni reported having spent about one-third more time in research than did self-report research alumni (see Table 1), and the URP alumni's undergraduate research experience was more than twice as important in affecting their decisions about graduate school and career than was that of self-report alumni.

### *Further Education Beyond the Baccalaureate*

In addition to inquiring about participation in undergraduate activities, perceived benefits, and enhanced skills and abilities, this survey examined post-baccalaureate education and career endeavors. Of the total respondent sample, 70% reported pursuing graduate education. Graduate school attendance rates differed by research participation: 80% of the URP alumni, 71% of the alumni with self-reported research experience, and 59% of the alumni with no research experience pursued graduate education. For further examination of the association of research experience with graduate school attendance, a probit analysis was conducted. Since a difference in cumulative GPA had been found among the three groups, the probit analysis was conducted with GPA as an independent variable in addition to research. The probit analysis (with grand mean GPA of 3.496) confirmed that participation in research increased the respondents' likelihood of pursuing a graduate degree. Based on the sample in this survey, the probability that alumni with undergraduate research experience would pursue graduate study was 67%, significantly higher than for alumni with no research experience at 57%.

The extent to which graduate study is associated with undergraduate research experience is even more noticeable when only doctoral degrees are considered. Of those respondents who attended graduate school to earn doctoral degrees ($N$ = 206 excluding MD and JD degrees unless these were earned in addition to PhDs), 67% were URP alumni, 21% were self-report undergraduate research alumni, and 12% were alumni with no undergraduate research experience. Probit analysis showed that URP alumni were about twice as likely to pursue a doctoral degree as were comparable alumni with no research (43% vs.23%). The likelihood that self-report research alumni would pursue the doctorate was 36%.

Regarding employment, the majority of all respondents said they were employed in a career related to their major; but compared to those who had participated in the URP, about one-third more non-research alums were employed in a career that was not related to their major. Also, in comparison to URP alumni, more than twice as many respondents who had not participated in research said they were not employed outside the home.

### *Effect of Research Involvement on Overall Growth and Satisfaction*

A final question asked respondents to indicate their overall satisfaction with their baccalaureate experience. Although alumni in all three research groups reported high overall growth and satisfaction, a univariate analysis of covariance found that, compared to alumni with no research experience, URP alumni reported significantly greater overall satisfaction ($F = 4.71, p = 0.009$).

### *Discussion*

The primary purpose of this study was to investigate educational outcomes related to the undergraduate research experience, which is a primary method of integrating faculty research into the education of undergraduates. A second goal was to develop a method for using alumni perceptions to assess educational outcomes. To test the assumption that research universities should pursue the integration of research and education (IRE) through undergraduate research programs, the fundamental question being addressed was: Can undergraduate research be shown to add a significant value to the education of its participants?

Instead of asking alumni of the Undergraduate Research Program what they thought they had gained from their undergraduate research experiences, the study surveyed both these alumni and a comparison group, asking the respondents to report time spent in, and benefits received from, a variety of activities, including research. The alumni were asked to report the extent to which their undergraduate education had enhanced 32 skills and abilities that are important goals of the baccalaureate experience. Respondents were also asked to indicate their overall satisfaction with the undergraduate education they had received and to report any postgraduate education. An initial analysis of the responses indicated two distinct groups of survey participants with research experience. Therefore, findings were compared across three research groups: those who had conducted research through the Undergraduate Research Program, those who had conducted undergraduate research without using services of the URP, and those who had done no undergraduate research. Initial analysis also revealed a difference in final cumulative grade point average among the three groups; thus, all subsequent analyses used GPA as a covariate.

All respondents with undergraduate research experience, whether through the URP or not, gave high ratings to the benefits received from their research experience. Even respondents who reported only one semester of research rated that experience as highly beneficial. Highest ratings were given by those who had devoted the greatest amount of time to research and had completed a senior thesis through the URP.

From responses examined, it appears that involvement in research did not interfere with involvement in other campus activities. On the contrary, respondents who had participated in research also reported involvement in other campus activities (such as sports, clubs, performing arts, and student government) at similar, and in some cases, higher levels than respondents who had not participated in undergraduate research. Likewise, involvement in research did not hinder respondents' ability to enroll in honors courses and maintain high grades. While it is likely that research students have high academic ability, it is also likely that these students refine their time management skills and learn to apportion time efficiently to a variety of activities.

Alumni of the Undergraduate Research Program reported significantly greater enhancement for eight specific cognitive and personal skills and abilities compared to alumni with no research experience. A factor analysis of these skills and abilities showed that URP respondents believed they had enhanced skills in three of four factors to a greater extent than had non-research alumni. In addition to these areas showing statistical significance, as can be seen in Table 3, there is a consistent trend throughout the survey that shows greater perceived enhancement of skills for those alumni who participated in undergraduate research.

While the level of several individual skills items did not reach statistical significance, their presence in the factors, combined with the overall trend in which research alumni report higher enhancement of almost all skills, suggest that these skills may be related to the undergraduate research experience.

Significant differences were also found between the two groups of respondents with research experience. Compared to self-report research alumni, URP alumni reported greater enhancement of their ability to carry out research and a greater enhancement of the skills represented in the Communication and Personal Initiative factor. Because the differences appeared in the areas of independent achievement (acquire information on my own, synthesize and use information from diverse sources, solve problems independently, better understand myself) and communication skills (listen effectively, write effectively, speak effectively), it may be that URP students were given greater individual responsibility and involvement by their faculty in the full range of research activity leading, for many, to the senior thesis and other projects for which the student became the primary investigator.

The relationship between undergraduate research experience and pursuit of graduate study is notable. The fact that alumni with research experience were significantly more likely to continue their education beyond the bachelor's degree and were about twice as likely to complete doctoral study as were comparable alumni with no research experience suggests that skills and abilities enhanced by research contributed to their success as doctoral candidates.

The finding that respondents' overall satisfaction with their undergraduate education was significantly higher for alumni of the URP is consistent with responses in other parts of the survey and confirms the perceived educational value added by undergraduate research. One potentially confounding variable, academic ability as measured by cumulative GPA, was used as a covariate in all analyses. In any future studies of alumni at this institution, a second potentially confounding variable could be courses that employ another form of IRE, problem-based learning (PBL). For the time period covered by this survey, however, PBL participation was not a threat to validity because the alumni surveyed had graduated before PBL had become an extensive presence at the institution. A post-hoc analysis by year of graduation showed that results did not vary by year, thus confirming that PBL was not a confounding variable for this sample.

Overall, although the differences perceived cannot be considered cause and effect, it is highly likely that participation in undergraduate research played an important role in the significant increases in oucomes and satisfaction reported by these alumni when compared to the increases reported by alumni who had not undertaken research.

### *Implications*

Because results of this study indicate important educational gains associated with undergraduate research, faculty concerned with improving undergraduate education should be encouraged to develop undergraduate research opportunities at their universities. However, it should be cautioned that the Undergraduate Research Program model being evaluated in this study defined undergraduate research as direct involvement of undergraduates in ongoing faculty research. This model assumes undergraduate research involvement to include increasing independence for the undergraduate researcher over an average period of at least one calendar year. The study's outcomes should be taken to have direct implications only for programs using such a model; these outcomes may or may not be similar to those from programs using other approaches to undergraduate research or other forms of IRE. Results do suggest, however, that as many faculty as possible in all disciplines should become involved in these highly beneficial collaborations and that institutions should commit funds sufficient to allow undergraduates to work with the faculty in research for substantial periods of time.

Faculty researchers collaborate in different ways depending on differing academic disciplines, resources, and individual preferences. Many faculty at present choose not to involve undergraduates in their research. For institutions wishing to follow the Boyer Commission's call to encourage the great majority of their faculty to collaborate with undergraduate researchers, additional studies documenting the range of successful approaches taken by faculty to undergraduate research would be helpful. Such studies should attempt to document the motivations of faculty for working with undergraduates as well as their perceptions of the costs and benefits to themselves of this form of IRE. Such studies should also determine whether faculty report educational outcomes for their own undergraduate research students that are similar to those reported by research alumni.

In addition to alumni and faculty surveys, other methods for assessment of IRE-program educational outcomes should continue to be developed. To assess the undergraduate research experience, qualitative investigations of undergraduate research students' perceptions of their own learning through research might illuminate the ways in which the research experience works to achieve the results shown. In addition, some assessments should move beyond self-reported data to attempt direct measurement of longitudinal cognitive gains for undergraduate research participants compared to the gains made by subjects in control groups.

The survey used in this study could be readily adapted for the assessment of undergraduate research programs at other institutions. It could also be used to assess other IRE initiatives, especially if only one such initiative were prevalent in the institution whose alumni are being studied during the period when the alumni surveyed were enrolled as undergraduates. The skills and other outcomes included in the instrument are central to all baccalaureate curricula, and they can be adapted to include questions of interest to the investigators. The method for establishing a comparison group matched by predetermined criteria worked in this case, even though, post hoc, it was necessary to adjust the comparison groups' membership and to include a covariate in the analyses of data. Since students at the institution in this study are encouraged to arrange their own undergraduate research placements as well as to use the service of the URP, however, it could have been anticipated that alumni who had done so would be among the respondents in the attempted comparison group.

It is worth noting that this survey had a good response rate (42%). Several respondents added a comment to thank the university president for conducting such a survey and including them in it. Many expressed the belief that studying the alumni experience concerning such central questions as those investigated on the survey showed real educational leadership and would be of benefit to the educational mission of the institution in years to come.

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# Book Reviews

*The Uses of the University*, Fifth Edition, by Clark Kerr.
Cambridge: Harvard University Press, 2001. 252 pp. $18.95.

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One of the hardest things for any scholar of society and its institutions to apprehend is a fundamental shift in his or her society and its institutions while living in their midst. For scholars of higher education that task has been made especially difficult in recent years by the widespread adoption of scientism, especially statistical microstudies, among higher education analysts as the dominant and proper method of study (Keller, 1998). Weberian social analysis is definitely out of vogue.

But 39 years ago, on April 23, 24, and 25, 1963 a 51-year-old labor economist and president of the University of California, Clark Kerr, delivered the Godkin lectures at Harvard and audaciously declared:

> Universities in America are at a hinge of history; . . . they are swinging in another direction . . . The university today finds itself in a quite novel position in society. It faces a new role with few precedents to fall back on . . . We are just now perceiving that the university's invisible product, knowledge, may be the most powerful single element in our culture, affecting the rise and fall of professions and even of social classes, of regions, and even of nations. (pp. xi-xii)

The lectures with their breathtaking claims and startlingly candid assertions were rushed into print; and in 1964 students, professors, campus officials, and higher education junkies gulped down *The Uses of the University* and began to argue about whether leading research universities had covertly evolved into substantially different entities, with new "uses" by society. Radical students at Berkeley charged that the lectures revealed Kerr as an aloof educational "fascist." Berkeley history professor Henry May pronounced Kerr's lectures the "least discreet" remarks ever delivered by an American university president. Others, however, wondered whether Clark Kerr might be the most incisive and clairvoyant analyst of what was happening to the higher reaches of U.S. higher education and its place in the polity.

In many ways Clark Kerr's little book launched the field of higher education studies. One year before Kerr's book came out Stanford psychologist Nevitt Sanford compiled what he regarded as the first comprehensive study of "the American college," lamenting that "social scientists . . . have not been particularly interested in higher education as a field of research" and hoping that "This volume has shown...that higher education is a field of inquiry" (Sanford, 1962, pp. 27, 1009). But Sanford's book focused on student learning and personal growth, not on the structural changes taking place in colleges and universities, as Kerr's book did. Sure, scholars such as Eric Ashby. Burton Clark, John J. Corson, Seymour Harris, Joseph Katz, T.R. McConnell, and David Riesman had begun studying aspects of higher education prior to 1963, but none had fully sensed the novel place of knowledge in contemporary life and what major alterations the centrality of research and fresh ideas was causing for the most noted universities. Kerr's *The Uses of the University* argued that research universities, as the chief generators of new knowledge, had suddenly become as vital to society as the national and state governments, the military, the religious sects, and the farms. Clearly, higher education had to be plucked from obscurity and examined by scholars more closely.

## *What Clark Kerr Uncovered*

Kerr's thesis was logically explosive. He contended that new knowledge had gradually become the key propellant in the growth and improvement for a nation's health, military might, economic competitiveness, artistic excellence, social harmony and political stability—a proposition that was subsequently publicized and embellished by social analysts such as Daniel Bell (1966, 1973) and Peter Drucker (1968). This prompted the federal government to invest huge new sums of money in research and development work in industry, new government agencies, and the nation's research-oriented universities. "Intellect has...become an instrument of national purpose, a component of the 'military-industrial complex' " (p. 93).

The rapid expansion of knowledge and its newly essential role in national affairs has had two main consequences for America's finest universities, Kerr thought. One was the increased "fractionalization" of the universities and the creation of a new kind of "multiversity." Kerr wrote, "The university started out as a single community . . . of masters and students. . . . Today the large American university is, rather a whole series of communities" (p. 1). There are scientists, humanists, artists, lawyers and physicians, administrators, athletes, social scientists, student radicals, scholars of business and finance, faculty pursuing truth and others pressing for social and political change, and more. In one of the numerous quips sprinkled throughout his book, Kerr writes:

> Hutchins once described the modern university as a series of separate schools and departments held together by a central heating system...I have sometimes thought of it as a series of individual faculty entrepreneurs held together by a common grievance over parking. (p. 15)

To Kerr, the multiversities have brought in their train a series of erosions in traditional practices. The undergraduate core curriculum has come to resemble a Chinese restaurant menu, with faculty reluctant to teach general education courses. Students have become more "restless" as their quest for understanding is broken into "endless subdivisions." Faculty governance has crumbled, with faculty senates becoming debating societies and increasingly "the avocation of active minorities." To many faculty members, their university is no longer even a focus of concern. They are "less members of the particular university and more colleagues within their national discipline groups" (p. 33).

The role of campus presidents and administrators has changed too. Kerr contended that the fragmenting of multiversities has meant that "the role of administration becomes more central in integrating it;" but the power of the president and deans has been diminished by the variety and "lawlessness" of the many-faceted modern university. There can be no coordinated strategy. The president has become chiefly a "mediator," whose main task is "peace"—a "marginal man." Purposeful change within the university becomes nearly impossible; "A multiversity is inherently a conservative institution . . . There are so many groups with a legitimate interest in the status quo, so many veto groups" (p. 28).

Kerr believed, "A vast transformation has taken place without a revolution, for a time almost without notice being taken;" and he marveled at "how fast [the research university] can change while pretending that nothing has happened at all" (p. 34).

The second consequence of the knowledge explosion for top universities, according to Kerr, is that they had become pawns of federal government agencies and research-needy large corporations. The federal government, primarily through six agencies, increased its appropriations between 1940 and 1960 a hundredfold, and the overwhelming proportion went for scientific and medical research and for graduate programs to train additional researchers. Kerr thinks this huge infusion of dollars from outside had produced what he calls "the federal grant university." These federal dollars, supplemented by grants from foundations and corporations, have without intention by their donors distended and radically reshaped many of the nation's leading universities.

By pouring such enormous sums into science and engineering and into research grants generally, the federal government has made "teaching...less central than it once was [and] research has become more important." At the research-heavy institutions the most creative and diligent professors scarcely teach at all; "More of the instruction falls to teachers who are not members of the regular faculty"—graduate students, adjuncts, part-time instructors. The professors in science and engineering become much better paid than those in literature, music, sociology, history, education, or philosophy, creating a new internal "class structure" of both earnings and prestige. The closeness of students and faculty evaporates. New semi-independent institutes and research centers spring up within the university. In another of his wry asides, Kerr observes:

> The mark of a university "on the make" is a mad scramble for football stars and professorial luminaries. The former do little studying and the latter little teaching, and so they form a neat combination of muscle and intellect. (p. 68).

As a pursuer of federal grants "the professor . . . takes on the characteristics of an entrepreneur;" and the universities and segments of industry become more alike. Washington, or the big foundations and corporations, not the home university, becomes the scholar-researcher's chief source of loyalty. "The agency becomes the new alma mater," Kerr states (p. 45).

Also, as a result of the new federal grant university conditions, Kerr argued that, "A university's control over its own destiny has been substantially reduced." Roughly 25 to 50% of a major university's expenditures come from outside, bypassing the campus budgeting process. These outside funds often determine in which areas a university grows, a growth that has little to do with helping students learn better. As Kerr puts it, "These directions have not been set as much by the university's visions of its destiny as by the external environment"(p. 92). Outside agencies become "the force for innovation" at the research universities, weakening both internal governance and presidential and trustee control, management, and policymaking.

Thus, Kerr asserts that the newly crucial importance of fresh knowledge and its effects are "reshaping the very nature and quality of the university. Old concepts of faculty-student relations, of research, of faculty-administration roles are being changed at a rate without parallel . . . We are in new times" (p. xii).

What can, what should the noted research universities do? Clark Kerr ends the 1963 Godkin lectures rather abruptly with resignation and several surprisingly vapid questions. He laments, "The process cannot be stopped. The results cannot be foreseen. It remains to adapt" (p. 93).

## *The Prolonged Aftermath*

*The Uses of the University* was so penetrating in its analysis, so daringly frank, and so superbly written—none of Kerr's many later writings were so brilliantly analytical, so boldly indiscreet, or so wittily crafted—that the book has become a classic and has stayed in print for four decades, with new editions containing the original text plus a fresh chapter coming out every 10 years or so. Now, at age 90, Clark Kerr has issued his fifth and final edition.

This fifth edition again contains the original lectures, but it also includes each of the essays Kerr added to his previous editions as well as a new preface and a new final chapter. The six essays that follow the Harvard lectures are a mixed bag, containing shrewd observations, apologies, guesses about the future, charming confessions, banal predictions, repetitions, and some noteworthy suggestions.

The essay from the second edition, written in 1972 after the student tumult at Berkeley, Columbia, and Kent State, is mainly a spiritless and forgettable apologia, responding meekly to the many student and faculty critics of his thesis, his droll language, and his passivity in the face of powerful new invasive forces altering the universities. "I discovered how dangerous it can be to describe as clearly and frankly as one could the inherent nature of a controversial institution" (p. 111).

The 1982 essay is titled "Attempted Reforms that Failed" and notes that many of the shining reforms of the 1960s and 1970s, from participatory democracy in decision making and small experimental colleges in the midst of the large universities to greater attention to teaching and undergraduates and bringing more poor youths into higher education, had largely failed. Why? Kerr blames the failure on the students and young faculty reformers whose tactics, charges, and language were offensive, on the senior faculty who were not willing to veer away from their new roles, and on weak administrative leadership. "Leadership does matter," Kerr discovers.

This chapter contains a revealing bit about Kerr's own hankerings. As president of the University of California system, he tried to establish a new kind of large university at the Santa Cruz campus, composed of separate smaller colleges instead of one mass collection of students and profusion of academic departments. It later failed also. But Clark Kerr, a 1932 graduate of Swarthmore

College and a Swarthmore trustee, seems always to have admired and valued the snug community life of liberal arts colleges (as did Ernest Boyer). He confesses, "My emotional attachment is still to the Swarthmore of the early 1930s" (p. 147). At the same time he understood the importance of the innovative research being done at great universities for the contemporary nation-state. So in his Godkin lectures he supplicatingly calls near the end of his presentation for fresh solutions about

> how to give adequate recognition to the teaching skills as well as to the research performance . . . how to create a curriculum that serves the needs of the student as well as the research interests of the teacher; . . . how to make the university seem smaller as it grows larger. (p. 89)

Clark Kerr is a person, a soul, deeply divided. He is able to view the rising federal grant multiversities both as "pathological" and rudely neglectful of the educational needs of eager young minds and as a brilliant and critically vital new addition to America's intellectual landscape.

The 1995 edition carried three essays. One is a series of observations about universities in the 1990s, loosely held together by a mounting pessimism. "Overall I am somewhat less optimistic about the course of development of the university and its capacity for conscious self-improvement" (p. 156). The second is largely a sustained worry about emerging faculty values and behavior and about the rising costs of higher education and the lack of adequate resources and will to finance these institutions. The third sets forth several innovations that Kerr believes may be necessary, such as education schools that act like land-grant agriculture schools, three-year colleges, and year-round use of university facilities.

The fifth edition has a final essay, "The City of Intellect." It wanders among discerning observations, predictions, repeats of his Godkin lecture themes, and concerns about the usage and place of the new technology in university life and about the rise of for-profit competitors in higher education.

## *A Remarkable Journey*

Clark Kerr, a one-time farm boy in eastern Pennsylvania, has traveled far in his 90 years. He is regarded today as a sage, one of the founding fathers of higher education research and studies, and a historic builder of the University of California. But perhaps his greatest achievement may be the shattering, impolitic contents of *The Uses of the University*. No subsequent publication has so far dissected so deftly and devastatingly the new directions of our renowned universities, the outside forces pulling them in these new directions, and the consequences for students, faculty, and America's eminence among world powers.

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*Traveling Through the Boondocks: In and Out of Academic Hierarchy* by Terry Caesar. Albany, NY: State University of New York Press, 2000. 203 pp. $19.95. ISBN 0-7914-4660-3

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Most higher education faculty in the United States are not employed at prestigious colleges and universities, those institutions with national reputations. Terry Caesar is one of the majority of faculty and *Traveling Through The Boondocks* is his account of, and thoughts about, life in academe's "middle," as exemplified by his life in the "boondocks" at Clarion University. He is concerned with how to represent the exclusion experienced by the faculty laboring in the boondocks. And at the end, he admits his "deep and abiding antipathies to academic life" (p. 169).

Caesar's book is part of a recent literature (e.g., Lamal, 2001; Lamal, Rakos, & Greenspoon, 2000; Martin, 1998; Nelson, 1997; Readings, 1996) that views with alarm such developments as the adoption of a business model by the managers (formerly administrators) of higher education. This literature calls attention to the "managerialization" of American higher education and the concomitant "proliteriazation" of the faculty, with students now being considered as "customers" who must be catered to. Although these are subtexts of Caesar's text, his primary focus is on higher education's institutional hierarchy. Caesar presents no quantitative data in support of what he has to say, but he cannot be faulted for that because he did not intend to write that kind of book.

A theme throughout the book is that the doctoral-granting institutions set the parameters and determine the criteria by which the other institutions are to be characterized and judged. Caesar analyzes and takes exception to this state of affairs. He says that the discussion about American higher education "badly needs not so much more voices as voices from different institutional positions" (p. 17). Instead, the politicized agendas of the boondocks institutions trail along after those of the elites, while other agendas grow further apart. Over and over again, second-rate universities are "recognized in order to be categorized, and then categorized in order to be dismissed or patronized" (p. 30).

Caesar discusses the "inescapable" conflict between two separate conceptualizations of academic departments, the department as a professional organization and as a social one. And at the second-rate institutions, sociality matters very much, because, says Caesar, research does not. Caesar maintains that at the second-rate institutions, faculty within departments "want to get along with each other because we have to" (p. 181). The likelihood of moving to another institution is low. Among other things, this means that everyone gets tenure. No one wants to risk rending the social fabric by voting against candidates for tenure. Just as one's reports of observations of colleagues' teaching can be expected to be positive. As Caesar says, "these reports are finally not about teaching but departmental unity" (p. 94). Indeed, he has such disdain for peer teaching evaluations that he readily admits to having written some without having bothered to observe the evaluations' subjects teaching. And apparently the low esteem in which such reports are held is shared by his colleagues and administrators, who year after year plod through the same meaningless exercise. One wonders how widespread this dismal, unedifying spectacle is.

One's institutional affiliation is crucial. The first-rate institutions are the loci of the resources and low teaching loads that allow for published research, which in turn results in political power within one's discipline. But, says Caesar, "it is my own conviction that what 'everybody knows' about the politics of institutional affiliation in the profession has scarcely begun to be articulated, and publicly barely at all" (p. 61). Nobody likes to consider the hegemony of the first-rate universities or even to characterize the "subjugated status" of the second-rate ones. Such hegemony is exemplified with respect to grants, where the right institutional affiliation, according to Caesar, can determine an applicant's likelihood of success.

The importance of personal networks in hiring decisions continues, in Caesar's view. Because everything with respect to hiring is now written up or spelled out, it is taken for granted that the hiring process is far more fair and progressive than in the past. But Caesar does not believe it is. "The process is just more complicated, more problematic, and more mystified [mystifying?]" (p. 114). The system designed to replace the old boy network seems instead to have bred a vast ignorance about what are the critical factors in the hiring process. The result is widespread cynicism about the process.

In one chapter Caesar describes the difficulty of teaching critical theory in the boondocks, as illustrated by his experience at Clarion. The students in his graduate course are mediocre at best. "They read, innocently. They have absolutely no background in literary criticism and no knowledge in literary theory" (p. 136). They are decidedly provincial. This characterization of Caesar's students will be familiar to those of us who have taught in various disciplines at second-rate institutions.

This book is not without flaws. Caesar's post-structuralist prose may be off-putting to many, such as I, who do not subscribe to that ideology. And having to turn to the many footnotes at the back of the book is distracting. Most of them should either have been part of the main text or omitted.

But those of us who have labored at the second-rate institutions will find ourselves nodding in agreement with much of what Caesar has to say. And those faculty at the top of the hierarchy may find his description of a different world at once enlightening and repellent.

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*In Pursuit of Prestige: Strategy and Competition in U.S. Higher Education*
by Dominic J. Brewer, Susan M. Gates, and Charles A. Goldman.
Brunswick, NJ: Transaction Publishers, 2001. 175 + xiii pp. $29.95 (cloth).

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A widely held view of American higher education is that it is "schizophrenic," according to Dominic Brewer, Susan Gates, and Charles Goldman and their book, *In Pursuit of Prestige: Strategy and Competition in U.S. Higher Education*. The system is, at once, the envy of the world, and broadly maligned as wasteful of its resources chasing unclear goals. These are not the polar positions of warring camps, but views held at once by many individuals.

The authors, economists at the RAND Corporation, apply an "industry study" framework to this exploratory study. But the reader should fear neither a quantitative bog, nor the imposition of a widgets-factory-efficiency ideal on the postsecondary enterprise. The study is qualitative (although background technical papers are available without charge from RAND), and grounded in 26 diverse institutional case studies. Brewer, Gates, and Goldman are clearly sympathetic to higher education, and in fact go to considerable lengths to engage and inform the non-specialist. Footnotes and main text are employed to explain concisely such concepts as accreditation and the Carnegie Classification system.

The authors hold that "higher education is an industry in which consumers are often underinformed in the sense that they cannot objectively evaluate the quality of the service before they actually purchase it" (p. 19). This is a common circumstance in service industries, but particularly true in higher education, where the emergence of benefits may not be apparent for years and decades. In such circumstances, the regard of the institution held by customers or other funders becomes paramount. But not every strategy for external regard is the same, and the authors categorize the two, basic strategies as the pursuit of reputation, or that of prestige.

While these are fairly synonymous terms in common usage, the authors apply and distinguish them very specifically. Reputation, which can be good or bad, rests on the ability to meet fairly specific consumer demands. It's usually fairly local, word-of-mouth, and updated on an ongoing basis. Prestige, on the other hand, is always positive, but more intangible. Prestige institutions are less likely to demonstrate the delivery of high-quality service and other elements of reputation, but they do conspicuously acquire and showcase elements that are indirectly associated with such service. These elements, which the authors call prestige generators, are said to be student quality, research, and sports. (The authors resisted the suggestion offered by some institutions that a high-quality faculty be considered a prestige generator; in an economic model, faculty are a cost or investment, not a source of revenue.) A further distinction of prestige is that, unlike reputation, it is inherently a zero-sum game: advances come at others' loss. The point, ultimately, of either strategy is the capture of additional resources, from enrollments, research funding, public support, and private giving. A special category of institution draws the interest of the authors: institutions that have depended on reputation, but that are seeking prestige.

The authors go to lengths to make their point that prestige and reputation are not absolute, exclusive concepts, nor would every prestige-based institution be able to, or interested in, competing on every element of that definition. Moreover, while the emphasis on prestige would increase as one moved up institutional classifications, both prestige and reputation seekers can be found at every level of higher education; the authors gave this diversity some consideration in their selection of case studies.

The implications of this model are many, and the authors examine several provocatively. For prestige-seeking institutions and some prestige schools, for example, the issue of early admission programs is considered. Under these programs, a student applies to only one institution, and is obligated to attend if accepted on an accelerated-decision schedule. Prestige is generated by a higher "yield" rate of accepted students actually enrolling. Fiscal benefits ensue as well. Because the program is more likely to appeal to full-pay students, spaces that must be filled by discounted-tuition students are fewer. The obligation to attend the institution also means that the institution will not become involved in an auction for a student, over and above demonstrated, formulaic "need." The authors suggest that these factors underlie dramatic expansion of such offers in recent years.

The authors write: "Institutions do not build prestige in the student market by being innovative or by identifying and meeting new types of student demands. Rather, they build prestige by essentially mimicking the institutions that already have prestige" (p. 66). As a result, innovation is not particularly valued or rewarded, either in pedagogy or program development. Those are more clearly strategies aimed at reputation.

Research is an area that generates a "halo" effect for prestige institutions, in such rankings—again, zero-sum—as those generated by the National Research Council. A pointed example is a study, cited by the authors, in which a prestigious California university was declared by expert opinion to have one of the 25 best psychology programs in the country—despite the fact that the university had no psychology program at all. Not only does the research halo extend across the university, the authors contend, but such capital dissipates slowly, and maintains prestige long after more objective assessments would contest it.

Prestige seeking is viewed as a risky proposition. Not only does the institution move from a positive-sum to a zero-sum environment, but the indicators of prestige are expensive, in a less-than-expansive environment for higher education. State legislatures, for example, through the imposition of performance indicators and funding, are more likely to value reputation-based elements—student employment, alignment of programs with work-force needs, etc.—than to invest in seed money for the pursuit of prestige. Sports strategies face the realities that the upper echelons of collegiate competition, particularly in football and basketball, are becoming more restrictive of entrance, with ever-escalating "dues" of cash outlay—with no guarantees of playing-field success. (Although the authors don't discuss it, it might be noted that the landscape of federal research funding has changed with the end of the Cold War, and with the ascendancy of conservative social agendas. The priorities and fiscal circumstances that will accompany these changes aren't yet entirely clear, adding risk.)

Brewer, Gates and Goldman hold that for-profit colleges have received remarkably little attention from researchers; alas, the authors do not also address that deficiency. They note that such institutions, while regarded as "diploma mills" by the higher-education establishment, are very dependent upon reputation and meeting the expectations with which students arrive. While this unitary focus may not be in "society's best interest," the authors do not follow this line of speculation. Perhaps there's another book in the offing, "In Pursuit of Reputation."

The thesis of the book, besides being exceptionally well presented, invites us to think about higher education and its socio-political machinations in grand, macro terms; it's delightful sport. But it's good to keep in mind that when elephants dance, lesser creatures suffer underfoot. Near the end of the work, the authors remind us of some victims of the hunt for prestige, P (p. 148):

> The biggest losers in the process are the students who desire the signaling value of a degree from a prestigious institution but who are not wealthy and do not have the characteristics that contribute to prestige. Not only are these students less likely to be able to afford private P schools, but because of the increased price differential between the public and private institutions, they are less likely to be admitted to a prestigious public institution.

This is a regrettable side-effect of the movement of economics' invisible hand, perhaps—except that the factors that contributed to the circumstance were artificially and intentionally created by institutions, pursuing ends that had remarkably little to do with those particular students'—or perhaps even any student's—real interests. The ramifications of the issues are still to be fully realized.

Little attention has been given in this review to the case studies supporting the authors' thesis. Little attention was given to them in the book, at least by common qualitative research standards in education. Good. Case studies should be used to illustrate and bring alive ideas and theories. They should not, as is so often the case, be presented in such excruciating, murder-trial-evidence detail as to beg the reader to flip pages in sheaves. Suffice it to say that Brewer, Gates, and Goldman selected their 26 college and university cases with an eye toward diversity in institutional size and classification, geographic location, and public-private and profit-nonprofit status. They interviewed fairly extensively at each campus, in a semi-structured format. They allowed respondents to know and critique their analytical framework and their conclusions, and they made some subsequent modifications based on feedback. And they give us just enough detail about six presented cases to keep us engaged and awake.

*In Pursuit of Prestige* has potential to set new research agendas in, and spur critical thought about, higher education in the United States. And as the authors suggest, globalization of basically everything is likely to make these institutional strategies of increasing interest around the world, interest piqued both within the academy and without.

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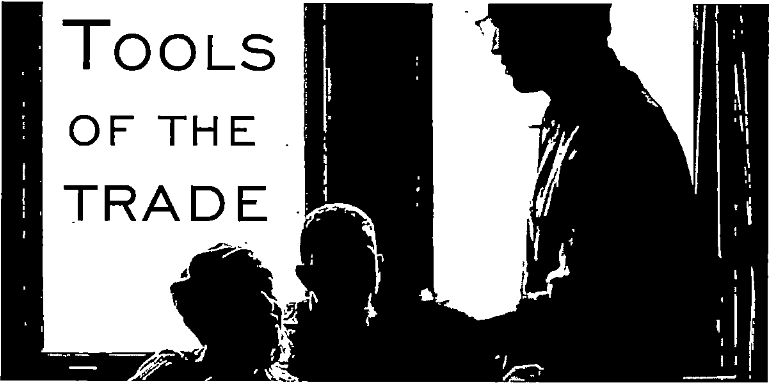

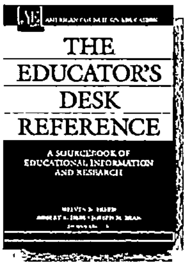

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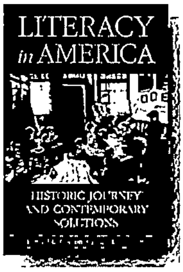

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Jeffery P. Aper
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# Post-Tenure Review at Graduate Institutions in the United States

## Recommendations and Reality

*Introduction and Background*

Evaluations of faculty performance, whether formal or informal, have been undertaken in one form or another for as long as colleges and universities have existed. Modern conceptions of tenure and academic freedom, which were largely shaped by the efforts and leadership of the American Association of University Professors (AAUP) came at most U.S. institutions in the twentieth century to mean that once a faculty member achieved tenure, subsequent evaluation was primarily for the sake of making salary or promotion decisions. In the early 1970s, however, some institutions of higher education introduced a more searching process of evaluating the performance of a tenured faculty member, which has become generally known as post-tenure review (Fry, 2000). Such reviews extend beyond the scope of typical annual reviews involving salary decisions or student evaluations of teaching (AAU, 2001). Licata and Morreale (1997) defined such an approach to faculty evaluation as "a systematic, comprehensive process, separate from the annual review, aimed specifically at assessing performance and/or nurturing faculty growth and development" (p. 1).

The decade of the 1990s witnessed a rapid growth in the numbers of institutions undertaking such efforts, and many states established a policy calling upon public institutions to do so (Miller, 1999). Harris, based on data collected from institutions representing all 10 Carnegie classifications, reported in 1996 that 61% had established post-tenure review

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policies of some kind. In the same year Trower reported data collected from 1200 four-year college and university provosts: 23% of his respondents had a post-tenure review process in place, and another 6% reported one under review. Licata and Morreale, in 1997, reported that a system of post-tenure review was "in the discussion or implementation stage in state institutions in 28 states" (p. 3), and the next year they upped that number to 30 (Licata, 1998). In a 2001 report the Association of American Universities reported that 24 of 41 responding member institutions indicated that they had post-tenure review policies in place. Still, across the states and the large number of institutions implied by this figure, policies and practices seemed to vary significantly in terms of expectations and practice (e.g., Licata, 1999; Magner, 1999; Wilson, 2001).

Quoting Virginia's 1994 Commission on the Future of Higher Education on tenure and post-tenure review, Miller (1999) reported what she believed to be the primary motivation behind most such state initiatives, "For the general public and corporate executives, tenure is about an entrenched system that is perceived to place a much higher premium on research than on teaching, that causes the institution to be inflexible rather than flexible, and that appears to ensure employment regardless of performance" (p. 4). Thus, she argued, policymakers viewed post-tenure review as a means of providing accountability and performance incentives in an entrenched system lacking such mechanisms.

Advocates hold that it is valuable for addressing accountability issues, improving faculty development and morale, linking mission and individual performance, and identifying unproductive, though tenured, faculty members (AAU, 2001; Bennett & Chater, 1984; Edwards, 1997; Licata, 1986; Licata & Morreale, 1997). Critics claim that the process has the potential to undermine or even destroy hard won faculty rights of tenure and academic freedom, is excessively costly in time and money needed for other important endeavors, and may erode tenure, academic freedom, and faculty collegiality (AAU, 2001; Bennett & Chater, 1984; AAUP, 1983, 1997; Reisman, 1986). Still others, such as Licata (1999), Chait (1997), and Tierney (1997), have sought to consider both pros and cons of this and related policies in proposing ways in which colleges and universities may continue to honor commitments to traditional concepts of academic freedom and faculty security while revising conventional tenure and related faculty personnel policy and practices.

### *Challenges and Recommendations*

Probably no other professional organization in higher education has been as consistently skeptical about post-tenure review than the American Association of University Professors. The AAUP was formally founded in 1915 as a general association of faculty and was instrumental in defining principles relating to faculty tenure, academic freedom, and the central importance of peer review in faculty life (Commission on Academic Tenure in Higher Education, 1973). It was the AAUP, working with the Association of American Colleges (AAC), that framed the 1940 Statement of Principles on Academic Freedom and Tenure that is almost universally cited in policy manuals at institutions of higher education across the United States. These principles are considered by most in higher education to be the definitive statement on tenure and academic freedom (Commission on Academic Tenure in Higher Education, 1973). In 1982 the AAUP teamed with the American Council on Education (ACE) to host a national discussion on post-tenure review at the Wingspread Conference on Evaluation of Tenured Faculty (see also National Commission, 1982). The AAUP has been consistent and forceful in seeking to protect tenure and academic freedom and has carefully scrutinized the purposes and actual or potential effects of post-tenure review. Thus, the AAUP's detailed consideration of post-tenure review provides a reasonable basis from which to assess the state of such policies in American colleges and universities.

As increasing numbers of institutions adopted post-tenure review policies in the 1990s, the AAUP, recognizing that many of the organization's members were working under the requirements of post-tenure review policies, promulgated recommendations for practice if such policies were to be adopted (AAUP, 1997). An article, appearing at the time in *Academe*, the journal of the AAUP, even asked if post-tenure review was a route by which tenure might be saved in American higher education (Edwards, 1997). The AAUP's Committee A on Academic Freedom and Tenure assessed the pros and cons of post-tenure review and prepared a report presenting the issues involved in establishing such a system and making recommendations for practice if such a policy were to be adopted by an institution (AAUP, 1997). A final report, approved in June 1999 by Committee A, was adopted that month by the national council of the organization and endorsed by the 1999 Annual Meeting. It is a briefer version of a report that was published in the September-October 1998 issue of *Academe*, which was the document used as a basis for framing the present study. The main points emphasized in these recommendations are summarized in Figure 1.

Since the AAUP recommendations emerged after many institutions had already established policies and implemented practices of post-tenure review, it raised questions about the types of policies and practices that were already in place at institutions and the degree to which

Prior to policy adoption:

- faculty members should hold primary responsibility for the design of any post-tenure review policy;
- current institutional practices and policies for faculty evaluation should be considered prior to adding new ones;
- costs in time and personnel of establishing new evaluative measures should be assessed;
- post-tenure review procedures should be established on a trial basis.

Policy characteristics:

- post-tenure review policy and practice should explicitly address and aim to protect academic freedom issues;
- criteria for review should be specific and published;
- faculty members should be involved in conducting such reviews;
- reviews should be aimed primarily at faculty development and not simply for the sake of personnel decisions;
- standards be flexible to account for the variety of faculty activities and appointments;
- appropriate resources should be made available to make such activities manageable and meaningful;
- outcomes of reviews should be confidential;
- due process procedures should be protected and maintained (AAUP, 1998).

FIG. 1. AAUP Recommendations for Post-tenure Review

AAUP concerns and recommendations addressed extant or impending policies. At the time of this study, no previous research had compared the post-tenure review recommendations of the AAUP with the policies and practices of post-tenure review in place at graduate-level public and private colleges and universities in the United States.

This study, then, was conducted with a primary aim of comparing the post-tenure review policies and practices reported by a national sample of graduate institutions with AAUP recommendations for establishing and maintaining good practice under such policy. The design of the study permitted comparison of responses received from public and private institutions at the master's, doctoral, and research level, as defined by Carnegie classifications. Only institutions with graduate programs were included in this study, both for the sake of delimitation and because faculty in graduate institutions typically face explicit expectations for performance in research, teaching, and service, whereas community colleges and four-year undergraduate institutions have missions that heavily emphasize the teaching role of faculty.

## *Research Methods and Design*

### *Population and Sample*

The population for the study was composed of all 742 accredited higher education institutions included in the 1997 Higher Education Directory (Rodenhouse, 1997) that were classified by the Carnegie Foundation as Research Universities I and II, Doctoral Universities I and II, and Master's (Comprehensive) Colleges and Universities I and II. Because this study used a stratified random sample to obtain information on subgroups-based institutional affiliation (public or private) and Carnegie classification (research, doctoral, or master's), a sample of 372 (50.1% of the total population) was selected to ensure that no portion of the stratified sample would fall below 40% of its segment in the population. Thus, 186 public institutions were included in the sample from 412 such institutions, and 186 private institutions were included in the sample from 330 such institutions.

The sample was further stratified on the basis of the three Carnegie classifications noted above, selecting an equal number of public and private institutions from each of the classifications. However, since there are more research, doctoral, and master's institutions in the public than in the private sector, this process yielded a sample in which public and private research, doctoral, and master's institutions were disproportionate to their actual numbers in the population. This approach to sampling helped to ensure that even the smallest strata of the population (private research and private doctoral institutions) would be adequately represented in the study without resort to statistical weighting strategies, while each stratum would contain institutional numbers sufficient to draw appropriate inferences to that segment of the overall population.

## *Instrumentation and Procedure*

A mailed, self-administered cross-sectional survey approach was used to collect information about post-tenure review at the selected institutions. Two questionnaires were sent to each of the 372 institutions included in the study (744 overall): one to the chief academic officer and the other to a faculty governance representative such as the faculty senate president or chair. Recipients were notified via e-mail in advance about the questionnaire's purpose and impending arrival. The majority of respondents replied to these e-mails and expressed genuine interest in the study and looked forward to the opportunity to participate. This positive initial contact translated into an overall response rate of 79%, based on the receipt of 584 completed surveys, a rate we considered sufficient to establish the generalizability of the opinions of the respondents to those of the population from which they were drawn.

The questionnaire used in this study was designed to address the AAUP recommendations (1998) for post-tenure review policy. The instrument was divided into three sections. The first section of the instrument collected information about the institution using a mixture of categorical items requiring a "yes/no" response and multiple-choice items pertaining to the institution's current action on post-tenure review. The second section consisted of multiple choice and fill-in-the-blank items pertaining to the implementation stage of institutional post-tenure review policy. The third section was composed of Likert-type scale items that solicited information about the institution's post-tenure review policies and practices and the degree to which respondents believed that each item was descriptive of her or his experience of institutional post-tenure review policies and practices. Cronbach's coefficient alpha, a measure of the internal consistency of the responses, was calculated to be 0.728 for the data collected based on the 15 statements presented to respondents on post-tenure review policy and practice. This reliability level was within an acceptable range based on the American Psychological Association's (1985) guidelines for such instruments.

## *Findings*

Table 1 shows the total number of responses received from chief academic officers and faculty representatives and the percentage of the total response by Carnegie classification. Responses were received from 302 chief academic officers and 282 faculty representatives. Public institutions accounted for 302 of the 584 responses received, and private institutions accounted for 282, which included 10 responses from private institutions with significant public funding.

Ninety-four percent of all respondents (546) reported that tenure was awarded at their institutions. The percentage was higher at public insti-

TABLE 1
Type and Level of Institution Responding

| | Frequency and Percentage | | | |
|---|---|---|---|---|
| | Research | Doctoral | Master's | Total |
| Public | 59 (20) | 48 (16) | 195 (65) | 302 (100) |
| Private | 50 (18) | 36 (13) | 196 (70) | 282 (100) |
| Totals | 109 (19) | 84 (14) | 391 (67) | 584 (100) |

tutions (99%) than at private institutions (87%), and at research institutions (100.0%) they were higher than at doctoral or master's institutions (each 92%). Private doctoral institutions reported the lowest percentage awarding tenure at 81%. Chi-squared analysis of the relationship between Carnegie classification, control, and tenure-granting showed significant relationships for each set of categories. Public institutions are more likely than private ones to award tenure ($\chi^2 = 35.118$, $p = 0.000$), and research institutions are more likely than doctoral or master's institutions to award tenure ($\chi^2 = 9.346$, $p = 0.009$).

Of the 550 individuals who responded to the question of whether their institution had post-tenure review 255 (46%) reported that their institutions used it in some form, while 295 (54%) said that their institutions did not have such policies in place. There were, however, significant differences between public (58%) and private institutions (32%) ($\chi^2 = 38.233$, $p = 0.000$), concerning the presence of post-tenure review policies, and between research (35%), doctoral (46%) and master's (50%) institutions ($\chi^2 = 7.586$, $p = 0.023$). A closer look revealed that there was little difference between Carnegie classifications within the public sector, but there was significant difference between levels within the private sector, with the master's institutions most frequently reporting post-tenure review (41%) and the research institutions least frequently reporting it (6%).

Responses received from 282 participants out of 295 who did not report a post-tenure review policy in place at their institution showed that 84 (30%) of the institutions were in the process of developing a policy, while 198 (70%) indicated that such a policy was not being developed. Among public institutions, there was no significant difference in the number of respondents who reported their institution to be in the policy development phase among the three Carnegie levels of institutions. Likewise, there was no significant difference between private research, doctoral, or master's institutions. However, there was a significant

TABLE 2

Percentage of Institutions Reporting Post-Tenure Review

| | By Institution Type | | |
|---|---|---|---|
| Carnegie Classification | Public Control | Private Control | Totals |
| Research | 59 | 6 | 35 |
| Doctoral | 58 | 27 | 46 |
| Masters | 58 | 41 | 50 |
| Totals | 58 | 32 | 46 |

difference between public and private institutions, with 42% of the respondents from public institutions and 21% of respondents from private institutions reporting that policies were being developed at their institutions. Chi-squared analysis showed a significant relationship between institutional control and whether or not post-tenure review was under consideration ($\chi^2 = 15.485$, $p = 0.000$), but no significant relationship between Carnegie classification and such action.

The majority of institutions engaged in post-tenure review activities have been involved in such activities for five years or less, and two-thirds reported such policy in place for 10 years or less, as summarized in Table 3. Chi-squared analysis showed a significant relationship between institutional control and the amount of time such a policy had been in place ($\chi^2 = 14.586$, $p = 0.001$) but not a significant relationship between Carnegie classification and the amount of time such policy had been in place. The differences between public and private research and doctoral institutions is quite striking, as 60% of public research institutions reported policies of five years of age or less, and none of their private counterparts reported this level or recency of such activity.

Respondents from institutions having post-tenure review in place most frequently reported their own faculty or administration as the apparent stimulus for developing and implementing such policy. These

TABLE 3

Reported Length of Time Post-tenure Has Been in Effect at Institutions Reporting Such Policy

| All Institutions (Frequency and Percentage) | |
|---|---|
| 5 years or less | 130 (52%) |
| 6–10 years | 35 (14%) |
| 11–15 years | 33 (13%) |
| 16–20 years | 21 (8%) |
| 21 years or more | 31 (12%) |
| Total | 250 (100%) |

| | By Carnegie Classification and Control | | | |
|---|---|---|---|---|
| Institution Type | Five Years or Less | 6 to 15 Years | 16 or More Years | Totals |
| Public Research | 21 (60) | 6 (17) | 8 (23) | 35 |
| Private Research | 0 (0) | 2 (67) | 1 (33) | 3 |
| Public Doctoral | 15 (56) | 5 (19) | 7 (26) | 27 |
| Private Doctoral | 4 (50) | 3 (38) | 1 (13) | 8 |
| Public Master's | 68 (60) | 26 (23) | 19 (17) | 113 |
| Private Master's | 22 (34) | 26 (41) | 16 (25) | 64 |
| Totals | 130 (52) | 68 (27) | 52 (21) | 250 (100) |

data are summarized in Table 4. Chi-squared analysis indicated a significant relationship between institutional control ($\chi^2 = 41.610, p = 0.000$), but not between Carnegie classification and perceived source of stimulus for such policy. Perhaps not surprisingly, all private research and doctoral institutions and most private master's institutions (82%) reporting on this item indicated that post-tenure review policy had its origins with the faculty or administration.

### *Post-Tenure Review Policy*

Since we wanted to know about the degree to which extant policies or proposed policies were seen as consistent with AAUP recommendations, respondents were presented with four questions adapted from the AAUP recommendations:

1. Did faculty members have primary responsibility for the design of the post-tenure review policy by serving as members of a group that set the criteria for evaluation?
2. Prior to adopting a post-tenure review policy, did discussions about the proposed policy take into account evaluative procedures already in place and elicit convincing data on what the existing procedures failed to address?

TABLE 4

Perceived Source of Stimulus for Establishing Post-Tenure Review, Frequency, and Percentage of Those Reporting

| | All Institutions | | | |
|---|---|---|---|---|
| Institutional Control | Faculty or Administration | Legislative Action | Governing Board Action | Totals |
| Public | 63 (41) | 43 (28) | 47 (31) | 153 |
| Private | 61 (85) | 0 (0) | 11 (15) | 72 |
| Column Totals | 124 (55) | 43 (19) | 58 (26) | 225 |

| | By Carnegie Classification and Control | | | |
|---|---|---|---|---|
| Carnegie classification | Faculty or Administration | Legislative Action | Governing Board Action | Totals |
| Public Research | 19 (63) | 3 (10) | 8 (27) | 30 |
| Private Research | 3 (100) | 0 (0) | 0 (0) | 3 |
| Public Doctoral | 7 (29) | 8 (33) | 9 (38) | 24 |
| Private Doctoral | 7 (100) | 0 (0) | 0 (0) | 7 |
| Public Master's | 37 (37) | 32 (32) | 30 (30) | 99 |
| Private Master's | 51 (82) | 0 (0) | 11 (18) | 62 |
| Totals | 124 (55) | 43 (19) | 58 (26) | 225 (100) |

3. Prior to adopting a post-tenure review policy, was an analysis conducted by your institution to evaluate the costs (in time and personnel) and the benefits of post-tenure review to the academic program?
4. Was post-tenure review set up on a trial basis to be periodically evaluated with respect to its effectiveness?

For each item, respondents were asked to respond "Yes," "No," or "Unable to Determine." A response of "Yes" was given a value of 1.0, and a response of "No" was given a value of 0. "Unable to determine" was counted as a separate category without a numerical value designation. The data suggest that most institutions with post-tenure review have given faculty members the primary responsibility for the design of the post-tenure review policy in setting the criteria for evaluation. They also indicate that discussions were held prior to the adoption of a policy on post-tenure review that took into account existing procedures for faculty evaluation, although in retrospect we recognize that this item potentially admitted of two separate questions—one regarding the occurrence of discussion, one regarding the elicitation of data on the limitations of existing procedures. This phrasing introduces the possibility that responses to this item were not unidimensional and perhaps reflect confusion or ambiguity on the part of respondents. The data do appear to be consistent, however, since the patterns of response to this item do not appear to be significantly different from patterns to the other related items in this section. The responses to the succeeding items further indicated that a cost/benefit analysis had not been conducted at most of the institutions, however, and that the policies had not been set up on a trial basis with periodic evaluations determining their effectiveness. Table 5 summarizes the responses of the chief academic officers and faculty respondents to the items pertaining to steps taken prior to the adoption of post-tenure review at their institutions and shows a high level of agreement on these questions between the two groups.

Just as administrators and faculty members were in general agreement on these issues, chi-squared analysis showed no significant relationship between type of institutional control or Carnegie classification on any of these items. It does, however, merit noting that analyses of the cost in time and personnel and the benefits of post-tenure review to the academic program were not reported at 90% of the institutions prior to the adoption of a post-tenure review policy. Similarly, only 14% of all respondents reported that post-tenure review had been set up on a trial basis at their institutions.

TABLE 5

Mean Agreement of Chief Academic Officers and Faculty Representatives with AAUP Recommendations

| AAUP Recommendation | (Mean and *N*)*<br>Chief Academic Officers | Faculty Representatives | Totals |
|---|---|---|---|
| Designed by Faculty | 0.90 (105) | 0.83 (90) | 0.87 (195) |
| Discussed Existing Evaluative Procedures | 0.76 (102) | 0.76 (78) | 0.76 (180) |
| Costs v. Benefits Evaluated | 0.11 (112) | 0.10 (89) | 0.11 (201) |
| PTR Policy Periodically Evaluated | 0.14 (125) | 0.14 (100) | 0.14 (225) |

*(1 = Yes, 0 = No)

### *Post-Tenure Review in Practice*

The second section of our questionnaire aimed at learning more about perceptions regarding the application of post-tenure review policy in light of the AAUP recommendations. We asked participants to respond to 15 statements adapted from the AAUP's recommendations. The 15 statements are listed in Figure 2. A 5-point Likert-type scale, ranging from "Strongly Agree" to "Strongly Disagree" with an "Undecided" midpoint, allowed respondents to indicate their opinions regarding the policies and practices at their own institutions. Because the midpoint (3) of the scale was a neutral or undecided option, the means in Table 6 are reported using a simple transformation achieved by subtracting 3 from each mean. In this way, means can be interpreted as positive (1 corresponding to a mean of "Agree" and 2 to "Strongly Agree") or negative (–1 corresponding to "Disagree" and –2 to "Strongly Disagree"). Mean responses greater than 1 were interpreted as indicative of substantial levels of agreement with the statements derived from the AAUP recommendations. It can be seen that items 1, 7, 8, and 9 tended to receive lower levels of agreement than the other items, regardless of institutional control or Carnegie classification. Questions of specific protections of academic freedom were raised with regard to specific policy statements, although not actual practice, the principal purposes of the reviews, and the availability of additional resources to support faculty development as a priority of post-tenure review.

Although multivariate analysis (detailed in Table 7) indicated some significant differences in the responses of the chief academic officers and the faculty representatives on some items, overall we interpreted the

1. My institution's written post-tenure review *policy* specifically addresses the concept of academic freedom.
2. The post-tenure review *practices* at my institution protect academic freedom.
3. Post-tenure review evaluations are broad and thorough at my institution, but the reviews are not equal to a retenuring process.
4. My college, school, and/or department has specific, published criteria to be used in post-tenure review that have been developed by faculty members and are periodically reviewed by faculty members.
5. Faculty members help conduct post-tenure reviews.
6. The primary purpose of post-tenure review at my institution is to make personnel decisions such as salary, promotion, etc.
7. The primary purpose of post-tenure review at my institution is faculty development.
8. The primary purpose of post-tenure review at my institution is a combination of faculty development and making personnel decisions.
9. The faculty development aspect of post-tenure review at my institution has been supported by the designation of new financial resources in the budget to fund faculty development.
10. The evaluative standards used in post-tenure review are flexible enough to acknowledge different expectations in different disciplines and changing expectations at different stages of faculty careers.
11. The outcome of evaluations is known only to the appropriate college or university persons or bodies and the faculty member being evaluated and released only at the discretion or with the consent of the faculty member.
12. All formal faculty development plans for an individual faculty member relative to post-tenure review are the product of mutual negotiations between the faculty member and administrators or colleagues.
13. The written post-tenure review policy at my institution provides a formal procedure to appeal the outcome of reviews and to change the record.
14. Before a tenured faculty member is dismissed or another severe sanction is imposed because of continuing and persistent problems of poor job performance, my institution attempts other less severe solutions to the problem (i.e., a mutually agreeable separation settlement or reassignment to other duties, etc.)
15. Recurring negative post-tenure reviews cannot lead to the dismissal of a tenured faculty member without the utilization of academic due process procedures in which the burden to show adequate cause for termination remains on the institution.

FIG. 2. Statements Presented to Respondents on Post-Tenure Review Policy and Practice

responses as suggesting practices seen in large part as consistent with the AAUP recommendations.

Administrators and faculty members were in general agreement that the policies on their respective campuses by in large permitted faculty

TABLE 6

Highest and Lowest Mean Responses: Administrators and Faculty

| Chief Academic Officers | | Faculty Representatives | |
|---|---|---|---|
| Highest Means (adjusted so that Neutral = 0) | | | |
| Item | Mean | Item | Mean |
| Practices protect academic freedom | 1.55 | Review cannot lead to dismissal without due process | 1.26 |
| Faculty members conduct review | 1.52 | Faculty members conduct review | 1.21 |
| Standards flexible | 1.48 | Outcome is confidential | 1.10 |
| Confidential outcome | 1.32 | Standards flexible | 1.05 |
| Lowest Means (adjusted so that Neutral = 0) | | | |
| Primary purpose faculty development | 0.68 | Policy addresses academic freedom | 0.28 |
| Policy addresses academic freedom | 0.39 | Primary purpose faculty development | 0.21 |
| Primary purpose personnel and development | 0.22 | Primary purpose personnel and development | –0.10 |
| New financial resources designated | –0.33 | New financial resources designated | –0.57 |

members to conduct reviews, allowed for flexible standards in the reviews, maintained confidentiality in the outcomes of the reviews, and aimed to protect academic freedom. The two groups tended not to agree that their policies reflected recommendations that post-tenure review focus on faculty development, that it be well-supported financially, and that the policy specifically address the question of academic freedom. Table 6 compares the highest- and lowest-rated responses of the chief academic officers and faculty respondents to these 15 items.

A general linear multivariate analysis of variance (MANOVA) was used to compare the responses of individuals from each type of institution who answered all 15 items. The purpose of this analysis was to test the null hypothesis that there were no differences between groups across these 15 items. Wilks' lambda was calculated as a statistic that permits the measure of group differences over multiple variables. Because lambda is a kind of inverse measure, the closer the calculated values of lambda are to zero, the higher the degree of discrimination or difference between groups. The results of this analysis indicated that there were no significant differences between Carnegie categories, between public and private institutions, nor when Carnegie level and affiliation of the institution were examined together.

The same type of analysis was conducted to compare the responses of chief academic officers and faculty representatives and type of institutional control. Again, no significant differences were observed when type of control was analyzed with respondent type (chief academic officer or faculty respondent). However, the analysis did reveal a significant main effect difference between respondent groups ($F$ = 2.474, $p$ = 0.002. Table 7 details the comparisons of the responses of chief academic officers with faculty respondents for all 15 items and shows significant differences in the responses between these groups on issues related to academic freedom, the purpose of such activities, and the flexibility of the policy.

## *Discussion*

Though tenure continues to be almost universal among these institutions, with 94% of institutions awarding it, post-tenure review has expanded in recent years, particularly among public institutions. Post-tenure review is a decidedly new phenomenon for most faculty members in graduate-level institutions. Over half (52%) of the post-tenure review policies reported were adopted between 1994 and 1999 (Table 3). Similarly, the AAU (2001) reported that a majority of the post-tenure review policies reported by its members had been adopted since 1995.

The motivation for adopting a post-tenure review policy differed for public and private institutions (Table 4), and this is again consistent with

TABLE 7

Detailed Comparison: Administrators and Faculty

| Item | $F$ | Significance |
|---|---|---|
| Policy addresses academic freedom | 0.107 | 0.744 |
| Practices protect academic freedom | 8.090 | 0 .005** |
| Post-tenure review is not equal to a retenuring process | 0.751 | 0.387 |
| Published criteria for evaluation developed by faculty | 1.921 | 0.167 |
| Faculty members conduct review | 1.712 | 0.192 |
| Primary purpose is not to make personnel decisions | 0.288 | 0.592 |
| Primary purpose is faculty development | 9.026 | 0.003** |
| Primary purpose is combination of personnel and development | 2.801 | 0.096 |
| New financial resources designated | 1.918 | 0.168 |
| Standards are flexible | 10.851 | 0.001** |
| Outcome is confidential | 1.657 | 0.199 |
| Faculty development plans are mutually negotiated | 3.840 | 0.051 |
| Formal procedure exists for faculty to appeal outcome of review | 0.635 | 0.427 |
| Institution attempts less severe sanctions prior to dismissal | 4.851 | 0.029* |
| Post-tenure review cannot lead to dismissal without using academic due process | 0.980 | 0.323 |

*$p < 0.05$, **$p < 0.01$

the recent AAU report. The pressures from public officials have been felt by public institutions, either directly or indirectly, certainly much more so than at private institutions, as public institutions are far more likely to have post-tenure review policy in place. These circumstances are illustrative of the continuing debate over the proper balance between external authority and institutional autonomy. The impetus for initiating post-tenure review policy is a matter of importance in that the relative tension between public policy, accountability, and institutional autonomy is especially evident in matters related to academic personnel and the rules and practices by which the faculty will go about its business.

Commenting on post-tenure review, Licata in 1998 concluded that "regardless of the model, all processes build on the annual review and almost all new policies emphasize faculty development as a goal" (p. 4). Earlier, Magner (1995) also reported that administrators tended to see post-tenure review as developmental as well as helpful in responding to questions of accountability. She observed that faculty attitudes tended to be questioning as to whether more evaluation was worth the time and effort or if it was just another reporting process to pacify critics, which at the same time threatened tenure.

Although the preference of the AAUP is to have faculty development as the primary purpose, institutions seem to vary in this regard, at least in the minds of our respondents. In this study administrators and faculty members differed in their sense of the purposes of post-tenure review—that is, whether it was intended to function primarily from a developmental or managerial perspective. Though not entirely clear-cut, our data suggest that there is some lack of agreement concerning the primary purpose of post-tenure review, i.e., whether it is intended primarily to serve to direct faculty development, to make personnel decisions, or some combination of the two, although the nature of the questionnaire permitted multiple responses to the question of purpose. There seems to be some disagreement on these issues, but there is a logical question with regard to how a policy could primarily address personnel decisions, faculty development, and some combination of the two simultaneously. Part of the problem may be linked to the construction of our questionnaire, which asked for responses to three items referring to the "primary purpose" of post-tenure review. Since almost all respondents addressed each of these items, there is a potential confounding of the interpretation of the data, because all three cannot logically be the primary purpose.

The related question of how evaluative data and any resources linked to them might be used is also an important one. There was agreement between administrators and faculty on the lack of specifically designated resources to support the review processes. It must be noted that the designation of new financial resources was not a specific recommendation of the AAUP, but we posed the issue in this way for the sake of greater clarity on this issue. Previous research has suggested that the lack of designated financial resources for faculty development can be a serious stumbling block for the successful application of post-tenure review (Wesson & Johnson, 1991). Further, the AAUP recommendations suggest that institutional resources should not only be used to support faculty development, but to recognize outstanding performance, as well. Faculty evaluation and development are frequent objects of policy action at the institutional and state levels, and yet the linkage of a formative evaluation intent and substantive resources explicitly dedicated to the cultivation of faculty talents and capacities is rare. In the data reported here, it seems that though some institutions may have redirected resources from other sources to faculty development, new financial resources have not been set aside for this purpose.

Our data also illuminate some potentially important differences in the perception of post-tenure review within the higher education community. Though they were generally in agreement on post-tenure review practice and that policies on their campuses were largely consistent with the spirit of the AAUP recommendations, there were significant differences in the perceptions of chief academic officers and faculty governance representatives concerning post-tenure review on some important items. For example, the apparent infrequency with which post-tenure review has been linked to existing evaluation policies, the failure of most institutions to evaluate post-tenure review, and the lack of specific resources designated to support the intended outcomes of post-tenure review are all somewhat troubling indicators of actions undertaken in the name of accountability that remain unintegrated into the lives of institutions.

Our respondents indicated that cost/benefit studies have not been conducted, nor has post-tenure review been adopted on a trial basis to be periodically evaluated with respect to its effectiveness. Of course, outside pressures to adopt a policy in a brief period of time (regardless of whether it can be proven to be cost effective and beneficial), not having data or clear criteria on how to judge its effectiveness, and the costs in scarce resources of time and personnel to conduct the studies may all be factors contributing to the dearth of such research. Nevertheless, it could be quite valuable to gather data to determine the actual costs and benefits that post-tenure review brings to an institution and faculty members. As is often the case with external pressures for institutional change, the question is not whether or not these activities will be conducted, because they will be, especially under legislative mandate or the threat of some equivalent compulsion. The pertinent question is whether they will mean anything (e.g., Spangehl, 1987). As unfunded policy "orphans"—that is, additional reporting duties essentially disconnected from the ongoing life of the institution, this question of meaning and value looms large.

Beyond questions of the purpose and funding of post-tenure review activities, little seems to be known about the effectiveness of these policies in identifying faculty members whose job performance merits reward, about improvement, or whether these activities actually have any appreciable effect on performance. Further, there is little apparent knowledge about the operationalizable costs and benefits of post-tenure review on campuses with established post-tenure review policies.

Post-tenure review has become a fact of life at almost half of the graduate institutions represented in this sample, and far more than half at public institutions in the United States, yet it seems largely to have been initiated based on external pressures, has not been supported with additional resources, and has not been subject to careful analysis of the real purposes and benefits of such activities. As accountability has become a watchword in American higher education over the past two decades, the proliferation of evaluation and assessment policies and practices may be more symbol and signal than substantive policy integrated into the larger purposes and mission of the institution.

A survey of faculty members conducted in 1999 by the National Opinion Research Center found that fewer than 6 percent strongly agreed with the statement that "post-tenure review has impacted faculty performance" (Leatherman, 2000). Recent reports out of South Carolina suggest that that state's aggressive efforts to link public funding for all aspects of institutional function (including faculty activities) to performance have had minimal effect (Schmidt, 1999, 2001). Even the link between faculty salary and productivity appears tenuous (Hearn, 1999). Though, as Miller (1999) has reported, policymakers may consider post-tenure review to be a mechanism that will enhance faculty productivity, accountability, and professional development, there is little systematic evidence that this is the case.

If complacency reduction is the intent of such evaluative efforts, there may well be more meaningful and effective approaches available (e.g., Cox, 2001; Tierney & Bensimon, 1996). While data can be a powerful tool in responding to calls for accountability, data alone cannot engender renewal or improvement. Multiple layers of data collection activities that do not have evident utility for the improvement of policy or practice can also have a draining and demoralizing impact. If post-tenure review policies have arisen as a response to demands that colleges and universities operate on a "lean and mean" corporate model, profound questions of mission and purpose must be addressed. To the extent that faculty are regarded as a skilled labor resource to be managed by cost accounting methods, higher education is degraded in spirit and in a greater social mission that far transcends the demands of simplistic social efficiency, credentialism, and allocation of social capital.

A potent next step in the research on post-tenure review should be aimed at determining the real effects, both intended and otherwise, of such efforts. It behooves administrators, faculty members, and policymakers alike to consider any change in policy and practice as substantive as post-tenure review as part of the whole fabric of the lives of colleges and universities, and not as another set of cosmetic and perhaps redundant reporting requirements. These data suggest that up to this point, post-tenure review has been more ritual than substantive and more driven by politics and appearances than by deeply rooted intentions to change the status of the faculty within the academy. Further research is warranted that would investigate the degree to which such policies have had systematic, constructive impact beyond symbol management and response to the rhetoric of accountability, cost accounting, and personnel management.

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# Reconceptualizing Research on College Student Peer Culture

Much is made of the influence of peer culture on college students, but the processes by which peers influence learning and development remain largely opaque to higher education researchers and administrators. College outcomes researchers have amassed empirical evidence of peer influence on learning (e.g. Pascarella & Terenzini, 1991), but student development researchers have not provided adequate theoretical support for these effects. We propose that the effects of peer culture can be explained through an ecological model of student development that places the student at the center of concentric rings of environments, ranging from immediate (microsystem) to most distal (macrosystem) contexts (Bronfenbrenner, 1979, 1989, 1993). Further, we propose that the interactions among immediate environments (mesosystems) create the forces of campus peer cultures. While the ecology model holds great promise for understanding the development of individual students, its greatest strength may lie in its ability to analyze the processes, as well as the outcomes, of peer culture.

This article develops an argument for incorporating human ecology theory into higher education research. After a brief review of research on peer culture, we provide an exposition of Bronfenbrenner's theory, apply it in two extended research examples, and suggest how it might be applied to other studies. The article concludes by discussing research and educational interventions based in ecological theory.

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Research on college student peer culture encompasses a broad range from the national portrait drawn by the Cooperative Institutional Research Program (CIRP) (Dey, Astin, & Korn, 1991) annual survey of entering students to institutional assessments of campus climates. From the early research of the 1960s (e.g., Astin, 1968; Clark & Trow, 1966; Newcomb, 1966; Wallace, 1966) to the present, scholars have attempted to craft definitions and typologies of peer culture, often with the dual purpose of describing a phenomenon while offering schema upon which postsecondary educators might design interventions to increase student learning and development.

This article examines peer culture at the level of individuals within affinity groups, as opposed to collective campus mores, or cohort-based youth culture. This level of analysis focuses on the immediate settings in which the proximal processes of development occur for individuals. Kuh identifies undergraduate peer groups as formal or informal groups "with which individual members identify, affiliate, and seek acceptance and approval over a prolonged period" (1995, p. 564). Student peer culture, he continues, refers to the processes and norms that guide the formation of such peer groups and their influence on members' behaviors and interpretive frameworks. There are other reasonable definitions of peer culture in the research literature, but it is with Kuh's concept that we most closely align our definition; campus peer culture encompasses the forces and processes that shape individual and collective life on campus in terms of identity, group membership, acceptable discourse, and desirable behaviors. In this article we are most concerned with the influence of peer culture on individuals.

Although several typologies and descriptions of students and peer culture have been developed (Astin, 1968, 1993a; Clark & Trow, 1966; Holland, 1966, 1973, 1985; Feldman & Newcomb, 1969; Horowitz, 1987; Kuh, 1990; Kuh, Hu, & Vesper, 2000) the mechanisms by which peers influence learning and development are not well understood (Kuh, 1995). To be sure, there have been numerous attempts to study college outcomes by "controlling" for the main differences among students and their college experiences, (e.g. Astin, 1977; Pascarella & Terenzini, 1991), but few scholars have examined how peer culture operates through the interaction of multiple individual environmental contexts. The work of Moos and other "campus ecology" researchers was a promising early attempt to conceptualize reciprocal person-environment effects in higher education settings (Huebner, 1979; Moos, 1979; Moos & Insel, 1974; Pervin, 1967). The Stanford school of human ecology was most influential during the 1970s and early 1980s in relating the design of physical space to patterns of human interaction. Although compatible with ecology theory arising out of developmental psychology, campus ecology has not remained central in higher education research and theorizing.

The human development ecology of Urie Bronfenbrenner fills this gap, offering a framework for understanding the influence of peer culture in college student development. Ecology theory accounts for both outcomes and processes of development by incorporating the interactions of individuals with their environments over time in a Person-Process-Context-Time model. In this article, we focus primarily on the process and context elements to apply the model to the study of peer influences on racial identity of mixed-race students and talent development of high-school valedictorians and American Rhodes Scholars. These examples demonstrate the usefulness of the ecology model in research on peer culture and its potential for future studies.

### *The Need for a New Framework*

Many educators believe that understanding college peer culture will enable them to improve the quality of undergraduate outcomes (Kuh, 1990, 1995). Abundant empirical evidence supports the notion that peers have a critical influence on college outcomes (Astin, 1984; Pascarella & Terenzini, 1991). Peer-influenced behaviors, such as student alcohol abuse and date rape, for example, remain among college presidents' chief concerns (Malloy, 1998; Upcraft & Welty, 1989), but seem intractable (see, for example, the 1998 Wechsler, Dowdall, Maenner, Gledhill-Hoyt, & Lee study on college students and alcohol). Even prestigious institutions identify an anti-intellectual student ethos emanating from college peer groups and the greater youth culture (Gose, 1996; Horowitz, 1987). Statistical analyses of college student characteristics and experiences do not address *how* peer culture influences student learning and development. Outcomes have been studied, but the processes leading to those outcomes have rarely been the focus of research. Widespread use of regression techniques serves to isolate the effects of pertinent variables rather than investigate the synergistic interactions among traits and experiences. For instance, researchers routinely control for socioeconomic status in regression equations designed to isolate the effects of various undergraduate experiences on student outcomes. Such analyses fail to capture the continuing, cumulative interaction of student cultural capital and educational opportunities, behaviors, and outcomes (Bourdieu, 1977). While much is said about "peer pressure" and the influence of peer attitudes on a number of undesirable behaviors (binge drinking, sexual harassment and assault, incivility, cheating, etc.), there is surprisingly little recent research linking peer culture with college student behavior and outcomes.

An examination of the reciprocal interactions between students and their environments provides a lens for understanding individuals in multiple, layered, and interacting environments, only some of which they encounter directly. An ecology model allows for analysis of individual experience as well as the creation of peer groups and processes of peer cultures. The model does not sacrifice the examination of processes as it analyzes outcomes. In order to facilitate the development of college students, postsecondary educators need to understand the reciprocal interacting effects of various subenvironments, levels of environments, and students themselves. We also need to know which student characteristics relate to their degree and type of responsiveness to different environments. Above all, we need to specify the processes by which these interactions produce change in individuals.

### *Campus Peer Culture and Ecological Models*

Following Wallace's (1966) exploratory but, he admitted, methodologically limited work identifying "student culture" as a factor in first-year student socialization, a flurry of research activity in the 1960s left higher education with several typologies to describe dominant student subcultures (e.g. Clark & Trow, 1966; Feldman & Newcomb, 1969; Holland, 1966). Katchadourian and Boli (1985) updated this work in the mid-1980s with their study of Stanford undergraduates; Astin (1993a) and Kuh, Hu, & Vesper (2000) largely confirmed earlier typologies while updating and refining the categories for newer generations of students. Typologies have been criticized for reflecting orientations and roles rather than student cultures and for not reflecting the fact that students rarely adhere only to the characteristics "or peer groups" of their empirically derived type (Kuh, 1990). Horowitz's (1987) historical classification of college types shares these shortcomings. Typologies are useful in understanding the nature of students and student life, but they do not delineate subcultures or peer groups and are not adequate for the task of researching the influence of peer culture on development and outcomes.

George Kuh (1990, 1993, 1995) has repeatedly called on higher education researchers to study student culture. Kuh (1995) argues that "accountability demands coupled with unfavorable economic conditions are prompting colleges and universities to seek ways to increase learning productivity" (p. 563), and that we need "knowledge about peer group effects on learning that occur inside and beyond the classroom and a redistribution of institutional effort (faculty, administration, staff, and students) in order to engage students in types of behavior that are more congruent with the goals of higher education" (p. 564). In an earlier article, Kuh (1990) provided an excellent analysis of the history of quantitative and qualitative assessments of peer culture, concluding that "before student cultures can be influenced, they must be discovered and understood" (p. 57).

Vincent Tinto (1987/1993) and John Weidman (1989) contributed significantly to understanding student cultures through their respective work on student retention and undergraduate socialization. Tinto's longitudinal framework (1987/1993) features elements unique to individuals (pre-entry attributes such as family background, skills and abilities, and prior schooling) interacting with elements shared with others at the institution (formal interactions with faculty/staff; formal extracurricular activities and informal peer group interactions with other students). These person-environment interactions lead to varying levels of academic and social integration that are believed to contribute to decisions to persist in or depart from college. Finding congruence within one or more student subcultures, even in the context of a broader campus culture that is largely incongruent, can lead to retention, whereas the absence of an adequate experience of congruence may lead to departure (Tinto, 1987/1993).

Whereas Tinto's framework concentrated on retention, Weidman's (1989) concentrated more broadly on what he called socialization outcomes, the "career choices, life style preferences, aspirations, and values" (p. 299) influenced by socialization by parents, collegiate experiences, and noncollege reference groups to which a student belongs. Weidman found three components of socialization most important to the study of college impact: "(1) individual, group, and organizational sources of socializing influences; (2) social processes (both inter- and intrapersonal interaction, social integration) through which these sources of socializing influences are encountered and responded to by students; and (3) resultant socialization outcomes in various college settings" (p. 297). Peer group influences are accorded an important role in Weidman's framework, which, like Tinto's (1987/1993), also attempts to account for the influence of a student's background characteristics, family, and academic experiences. Weidman's (1989) most important contribution may be his introduction of the notion of "normative pressure" (p. 301) to posit how various interactions (parents, faculty, peers) influence outcomes. Tinto's and Weidman's frameworks represented significant advances for person-environment theory in higher education, and they form the basis for important studies in student retention and college outcomes.

Developmental psychologist Theodore Wachs (1992) traces the history of person-environment research to make the case for additional ecology theory. Phase I research, according to Wachs, asks whether environment influences development, while Phase II studies investigate which specific aspects of the environment are relevant for development. Studies in these traditions continue and are appropriate in many cases. For instance, the question of whether personality is still malleable in early adulthood is a Phase I question of potential interest in higher education. Phase II studies make up the bulk of large-sample, quantitative research in higher education (Astin, 1977, 1993b; Pascarella & Terenzini, 1991). This careful work of isolating "net effects" of particular college experiences (Pascarella & Terenzini, 1991) offers valuable information about salient environmental factors in development. It is through Phase II research, for example, that we learn of the power of peer relations and of informal interaction with faculty outside the college classroom. Neither Phase I nor Phase II research, however, sheds much light on the processes by which certain environmental experiences affect development (Weidman, 1989), the ways in which students' multiple environments interact, or the ways in which students themselves partially produce their own environments. Understanding that environments and the people within them are dynamic, not static, Wachs (1992) characterizes Phase III research as investigating the process by which variability in multilevel, interacting environments translates into variability in developmental outcomes. Incorporating Bronfenbrenner's (1979, 1989, 1993) ecology model in our respective research on racial identity (Renn) and talent development (Arnold) illustrates such Phase III research.

### *Bronfenbrenner's Person-Process-Context-Time Model*

In 1977 developmental psychologist Urie Bronfenbrenner presented an initial version of a model for understanding the influence of person-environment interactions in an individual's development. Attempting to put forth a unifying theory of cognitive development, he created a theoretical framework that incorporated the work of other psychologists, including Kurt Lewin, Lev Vygotsky, and Gordon Allport. Bronfenbrenner united their theories into an *ecological paradigm* that he said captures the context-specific person-environment interaction that "emerges as the most likely to exert influence on the course and content of subsequent psychological developments in all spheres" (Bronfenbrenner, 1993, p. 10). In an expansion of his original proposition he said:

> The ecology of human development is the scientific study of the progressive, mutual accommodation, throughout the life course, between an active, grow-

> ing human being, and the changing properties of the immediate settings in which the developing person lives, as this process is affected by the relations between these settings, and by the larger contexts in which the settings are embedded. (Bronfenbrenner, 1989, p. 188)

Of particular relevance to higher education, Bronfenbrenner was specifically interested in developing a model that accounted for the interactive, rather than additive, effects of peer and family influences. Such a synthetic approach to college students holds great potential for educational interventions designed to change campus peer culture on issues such as alcohol use, race relations, and academic dishonesty (Dalton & Petrie, 1997). The ecology approach is therefore useful not only as a heuristic and research device, but also in educational practice.

Bronfenbrenner (1979, 1989, 1993) rejected the common assumption of most research that developmental attributes (intelligence, achievement, Piagetian-type stages and processes, etc.) can be measured and examined out of the context of an individual's life, time, and society. In his paradigm, an individual interacts within ever more complex spheres of relationships, each of which is integral to development. A major tenet of Bronfenbrenner's model holds that in order for development to occur, the individual must engage in increasingly complex actions and tasks. Bronfenbrenner's work incorporates Astin's (1984) notion of involvement and Sanford's (1956, 1960, 1962) notion of challenge and support into a model that can be used to focus on the processes, "the how and why," of college student development.

Bronfenbrenner's ecology model entails *microsystems, mesosystems, exosystems,* and *macrosystems,* linked together in "a system of nested, interdependent, dynamic structures ranging from the proximal, consisting of immediate face-to-face settings, to the most distal, comprising broader social contexts such as classes and culture" (1993, p. 4). The four systems describe the nested networks of interactions that create an individual's ecology (see Figure 1). This "person-process-context" ecology changes over time for a given individual through the process of the chronosystem, making it the "person-process-context-time" (PPCT) model.

## *Person and Process*

Underlying Bronfenbrenner's (1993) theory is the axiom that "development is an evolving function of person-environment interaction" (p. 10). His second axiom is that "ultimately, this interaction must take place in the immediate, face-to-face setting in which the person exists" (p. 10), and this is precisely the reason—theoretically as well as practically—

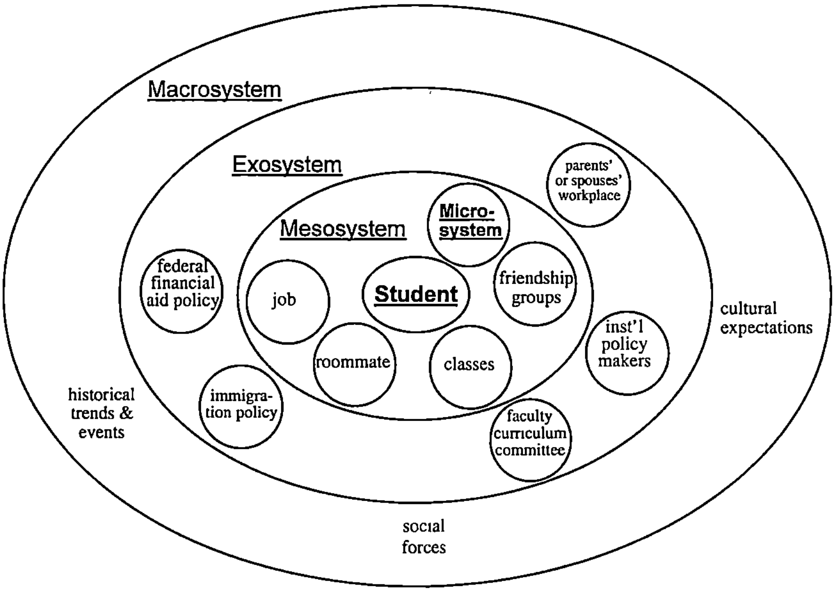

FIG. 1. Bronfenbrenner's Model as Applied to a Postsecondary Environment

that peer culture is important to studying college students. These proximal developmental processes may occur between the individual and one or more others or as a result of engagement in progressively more complex activities and tasks (Bronfenbrenner, 1993). So far, Bronfenbrenner's theory parallels the person-environment theories familiar to higher education researchers (cf. Banning & Kaiser, 1974; Holland, 1966; Moos, 1979; Tinto, 1987/1993; Weidman, 1989). Bronfenbrenner (1993) goes further in explicating developmental processes with the proposal that "the attributes of the person most likely to shape the course of development, for better or for worse, are those that induce or inhibit dynamic dispositions toward the immediate environment" (p. 11). He calls these attributes *developmentally instigative characteristics.* These characteristics, and the processes they invoke, are the missing piece that explains the *how* as well as the *what* of development.

Bronfenbrenner (1993) describes four types of developmentally instigative characteristics. To the first type belong those that act to invite or inhibit particular responses from the environment. Different students elicit particular responses from peers and faculty, administrators and coaches. Of the second type are those of "selective responsivity," or how individuals characteristically react to and explore their surroundings.

Some students throw themselves into student organizations, while others prefer more solitary activities. Third are the "structuring proclivities," relating to differences in how individuals engage or persist in increasingly complex activities, including reconceptualizing and creating new features in the environment. Some students consciously seek out intellectual, social, and work-related activities that require increasing levels of critical thinking, leadership, and problem solving. The fourth type of developmentally instigative characteristic relates to "directive beliefs," referring to how individuals view their agency in relation to their environments. High achieving valedictorians, for example, believe that they understand the academic environment and act under the assumption that proper application of effort yields high grades (Arnold, 1995).

Differences in developmentally instigative characteristics account for some of the variability of college outcomes regardless of such nonenvironmental characteristics as race, ethnicity, gender, and age. "Developmentally instigative characteristics do not *determine* the course of development; rather, they may be thought of as 'putting a spin' on a body in motion. The effect of that spin depends on other forces, and resources, in the total ecological system" (Bronfenbrenner, 1993, p. 14). This "force-resource" approach (Bronfenbrenner, 1993, p. 14) is useful in understanding how peer groups influence development by investigating how combinations of instigative traits and nonenvironmental characteristics attract students to different peer groups and with what outcomes. For example, how do students' nonenvironmental characteristics (like IQ, gender, family resources) and developmentally instigative traits (like motivation, intellectualism, self-efficacy) predispose them to choose academically oriented or socially oriented peer groups? Just as important, how do such traits heighten or attenuate the norms and expectations of a given peer group? Through this lens, we can see what combinations of instigative traits and nonenvironmental characteristics attract students to different peer groups and with what outcomes.

### *Context*

Of particular interest in the study of peer culture are the contextual elements of microsystem and mesosystem. Bronfenbrenner (1993) defined the *microsystem* as "pattern of activities, roles, and interpersonal relations experienced by the developing persons in a given face-to-face setting with particular physical, social, and symbolic features that invite, permit, or inhibit engagement in sustained, progressively more complex interaction with, and activity in, the immediate environment" (p. 15). Microsystems are analogous to Weidman's (1989) "normative contexts"

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(p. 300). A traditional age college student's microsystems might include a residence hall or apartment with roommates, a science laboratory section, a student organization, an athletic team, or a campus job. Adult and commuter students might also have families, full-time jobs, community involvement, and so forth. Each of these situations provides physical, social, and symbolic features that promote or inhibit increasingly complex interactions between students and their environments. In other words, environments, too, have developmentally instigative or inhibitory features. For instance, living-learning residence halls facilitate out-of-class intellectual activities, whereas fraternity or sorority houses may encourage social involvement; each may support residents' participation in community service activities.

According to ecology theory, "there is always an interplay between the psychological characteristics of the person and of a specific environment; the one cannot be defined without reference to the other" (Bronfenbrenner, 1989, p. 225). Therefore, college peer microsystems are unique to individuals and cannot be subsumed under some global rubric of youth culture or college student culture. Even within the same setting, such as a seminar classroom, individuals will interact differently with that microsystem depending on their backgrounds and developmental trajectories. This notion problematizes educational strategies to influence student behavior and attitudes; unless interventions consider variability in individual experiences, they are bound to fail. The microsystem is the locus of proximal processes of development, and the nature and membership of immediate settings is an important question at this level of analysis.

At the microsystem level, ecology theory resembles Astin's (1984) involvement theory, and it is true that the principles of involvement theory hold true in microsystems. Involvement theory, however, focuses on microsystem analysis instead of the effects of multiple, interacting environments. Weidman (1989) called these effects "in-college normative pressure" (pp. 310–312). Bronfenbrenner (1979, 1989, 1993) introduces the mesosystem to explain this phenomenon.

The *mesosystem* is a web of involvements that "comprises linkages and processes taking place between two or more settings containing the developing person. Special attention is focused on the synergistic effects created by the interaction of developmentally instigative or inhibitory features and processes present in each setting" (Bronfenbrenner, 1993, p. 22). College students are embedded in interacting mesosystems of academic, social, family, and work life. Each of these systems has developmental effects on the student. The effects within and across systems may reinforce one another or they may act against one another, drawing attention to discrepancies and causing the student to confront contradictory processes and messages between individual microsystems.

A human ecology analysis of peer culture provides a vehicle for examining the creation, nature, number, complexity, and context of microsystems and mesosystems operating for individuals and groups on a given campus. The peer culture mesosystems of residential students with campus employment comprise primarily on-campus microsystems. The mesosystems of adult learners with significant work and family commitments may entail primarily off-campus microsystems. In a culture of higher education research and practice that values campus involvement as the primary condition of student development (Astin, 1984), students whose lives are not campus-based become problems for analysis and challenges to student development theory. In an ecology model that values the nature of relationships between and among on- and off-campus microsystems, adult students and distance learners become no more or less central to developmental theory or administrative practice.

The ecology model provides a framework for analyzing differential access to microsystems on one campus or across institutions. How do individuals and environments mutually "choose" membership? Are there tacit or explicit criteria for entering certain microsystems? Entrance to a varsity athletic team is generally controlled by a coach, and residential fraternities and sororities select their own members. In less formal microsystems, such as friendship groups, the criteria are generally unspoken but no less clearly enforced. The ease with which students can move from one peer microsystem to another within the mesosystem may influence the total number of different interactions a student experiences and therefore influence his or her developmental possibilities.

Finally, Bronfenbrenner's notion of "ecological niches" as "specified regions in the environment that are especially favorable or unfavorable to the development of individuals with particular personal characteristics" (1993, p. 18) supports the use of his model in analyzing campus peer culture. Special mission institutions (military academies, single-sex colleges, religiously affiliated institutions) attract and support relatively homogeneous student bodies (Kuh, 1990). These institutions could be seen as ecological niches that are especially favorable to students whose attitudes are congruent with institutional philosophies and especially unfavorable to students whose attitudes are incongruent. Within institutions, there are also ecological niches that instigate or inhibit development for students with varying personal characteristics. Microsystem niches attract and support some students and not others.

Beyond the microsystems and mesosystem lie the *exosystem* and the *macrosystem.* Exosystems exist when there is a setting not containing the individual that nevertheless exerts influence on his or her developmental possibilities. For dependent college students, parents' workplaces are exosystems. Family economics and related educational decisions are driven in large part by decisions related to hiring and compensation made in the parents' workplace. The federal government is another exosystem; policies relating to financial aid, for example, affect students' daily lives in terms of amount of work required to pay college costs, anxiety related to finances, and so forth.

The macrosystem represents the most distal level of environmental influence, providing the overall framework for an individual's developmental possibilities. The macrosystem "consists of the overarching pattern of micro- meso- and exosystems characteristic of a given culture, subculture, or other extended social structure, with particular reference to the developmentally instigative belief systems, resources, hazards, lifestyles, opportunity structures, life course options and patterns of social interchange that are embedded in such overarching systems" (Bronfenbrenner, 1993, p. 25). In the United States, macrosystem influences include meritocratic notions derived from democratic values and capitalist ideology. Cultural understandings of gender, race, and ethnicity also emit from the macrosystem to affect micro-, meso-, and exosystems. The macrosystem provides the structure and content of the inner systems and is specific to a given culture at a given moment in history. It is time and place dependent. Who attends what college and on what terms might seem to be an individual or at least family-based decision, but the conditions that govern college-choice making are located in the macrosystem and only made manifest locally.

### *Time*

The element of time is crucial to the ecology model and is represented in the *chronosystem.* "The individual's own developmental life course is seen as embedded in and powerfully shaped by conditions and events occurring during the historical period through which the person lives" (Bronfenbrenner, 1995, p. 641). The chronosystem conveys the element of time as manifest in changes in the larger cultural forces of the macrosystem. Students are shaped in part by the era in which they attend college. Time-bound cohort influences include national and global events that characterize that era, such as the 1960s social movements or the conservatism of the 1980s, as well as economic and cultural trends.

Time can also be examined as it relates to the sequencing of events over an individual's life course. "A major factor influencing the course and outcome of human development is the timing of biological and social transitions as they relate to the culturally defined age, role expectations, and opportunities occurring throughout the life course" (Bronfenbrenner, 1995, p. 641). Students entering college immediately after high school generally have different roles and family expectations than students who enter after working for several years, marrying or partnering, and perhaps rearing children. Because development is linked to timing of events, the same event in a family (such as a divorce, a move, or sibling birth) will affect individuals differently (Elder, 1974, 1999). The accumulation of life experiences over time is a lasting effect of the chronosystem on the individual, and students arrive at college with unique characteristics shaped by common social forces and by individual experiences.

### *Examining Peer Culture as Mesosystem*

The ecology model, and the mesosystem in particular, are powerful tools for exploring college student peer culture. The model takes into account the specificity of individual life history, the campus milieu, and the larger societal and historical context of development. It provides a framework for understanding how peer culture influences student development through proximal processes occurring within microsystems. The model also conceptualizes how students choose microsystems through developmentally instigative characteristics and how the characteristics of environments might function to select participants. The ecology model is particularly well suited to understanding how individuals and their proximal environments interact to shape identities of individuals and of groups because "the one cannot be defined without reference to the other" (Bronfenbrenner, 1989, p. 225). Research on student affiliation has long recognized the role of high-school friends and similarity of characteristics such as sex, race, religion, and social class (Newcomb, 1966). The ecology model goes one step further to theorize that affiliations influence development when they involve increasingly complex proximal processes. Furthermore, it calls attention to the interactions between and among microsystems as students experience an overall environment of social and academic systems. Research on racial identity and talent development illustrates the utility of the ecology model in examining the influence of peer culture on student development.

### *The Case of Mixed-Race Identity*

A study of the college experience of bi- and multiracial students strongly supports the use of the ecology model to understand the role of peer culture in individual and group racial identity (Renn, 1999, 2000). People with heritages from different racial and ethnic backgrounds have existed throughout the history of the United States (Spickard, 1992), but the numbers of mixed-race college students has risen sharply in the past decade (Nishimura, 1998; Schmidt, 1997). To be sure, these students share much of the experience of their "monoracial" peers of color on predominantly white campuses. But the unique experience of being mixed-race in a society—and on college campuses—built on the idea that everyone fits into a single, federally designated racial category provides a rich topic for the study of peer culture and racial identity.

The knowledge and beliefs that multiracial students accumulated while growing up shaped them in ways that affected their approach to the college environment. Taking into account the chronosystem effects of 17 or more years of "What are you?" encounters (Williams, 1996) in family, schooling, and community life, study participants' personal histories primed them for a variety of interactions in college.

The most significant "input condition" of participants' precollege lives was family, followed by community and high school. The family was the source of the individual's heritage and constituted the primary site of cultural transmission. How individuals in the family microsystems dealt with race and racism and the extent to which they transmitted the culture of both or all heritages were major influences on what college microsystems were available to and selected by study participants. Students describing themselves as "half-Asian" or "half-Mexican" found that the extent to which they were familiar with the languages, food, and values of a certain culture determined their acceptance by students they described as "whole" (monoracial). Students whose precollege chronosystems had not contained opportunities to learn about their heritages felt clearly marked as outsiders to monoracial student organizations and friendship groups. Unlike more traditional, linear identity development models (Atkinson, Morten & Sue, 1979; Cross, 1991, 1995; Helms, 1990), the ecology model explicitly accounts for these differences in college entry characteristics.

Once in college, students developed new microsystems that interacted to create the peer cultures that surrounded them. Academic work, friendship groups, and campus activities were the key microsystems influencing multiracial identity. Through these microsystems, students encountered cognitive and emotional challenges to their ideas about race and identity. Identity often played a role in the creation of friendship group microsystems. Consistent with earlier studies of group formation (Newcomb, 1966) participants sought out other students of color and, when possible, other mixed-race students. Friendship groups were not exclusively based on racial identity, however, and frequently formed around common experiences such as first-year residence hall assignments and athletic team participation. Conflict between norms and values of friendship groups and other campus microsystems was cited by many students as a source of awareness and growth of multiracial identity.

Campus activities microsystems were another major site of identity development. Participation in "monoracial" student organizations (the Black Student Forum, Asian American Alliance, La Fuerza Latina, etc.) provided opportunities to form relationships with students sharing part of a participant's heritage, but more often were places where identity was contested and subtle (and sometimes unsubtle) challenges to mixed-race students' authenticity were commonplace. Shared knowledge, culturally specific experiences, humor, and physical appearance were used to mark the boundaries of these microsystems, and mixed-race students were not always considered "X -enough" to be permitted entry.

Two-thirds of the students who believed they entered college with a cultural knowledge deficit took language, literature, and history courses to learn more about one of their heritages. Some students sought academic microsystems that specifically addressed the experience of mixed-race people, in courses with names like Growing Up Multiracial in the United States and The Psychology of Race and Mixed Race. Challenged to think more complexly and provided with theoretical models for understanding the social construction of race, mixed-race students came to identify situationally, according to differing features in their environments (Renn, 2000). Cognitive flexibility has been determined to be a critical element in multiracial identity (Kich, 1992; Root, 1990), and academic microsystems were important sites for developing the cognitive skills required to negotiate the racial landscape of friendship groups and campus activities.

These interactions among microsystems form the mesosystem of peer culture. The messages about culture, race, and identity that circulated through the peer culture mesosystem illustrate the "synergistic effects created by the interaction of developmentally instigative or inhibitory features and processes present in each setting" (Bronfenbrenner, 1993, p. 22). While traditional racial identity development theories take a more or less linear approach from lack of awareness of racial differences to immersion in the culture of one's (monoracial) heritage to integration of racial identity with other personal characteristics, the lives of mixed-race students portray a more complex journey into the meaning of race itself. Participants often chose not to identify with any of their racial heritages, choosing instead to identify with other mixed-race people or to opt out of racial identifications entirely by describing themselves culturally (Korean and Italian, Jamaican) or deconstructing race ("I just don't buy into the categories," "I won't let my government—or my college—put me in some made-up box)" (Renn, 2000). Most students reflected that their identities as multiracial people came about as a result of interactions in college, and of those who chose to opt out of definitions (approximately one-third of the total study group), intellectual access to the concept of social construction of race was a key element. Interactions in the mesosystem enabled students to consider race, culture, and identity through a variety of lenses, keeping or discarding lenses as necessary to maintain the clearest focus on themselves.

### *The Case of Talent Development*

Research on academic talent development provides another rich illustration of how the ecology model is useful in studying campus peer culture. Examples in this section are drawn from two major studies of academic talent development in higher education. How top grade earners translate their high-school achievement into college academics and high-level careers is the topic of an ongoing longitudinal study of high school valedictorians begun in 1981 (Arnold, 1995). The valedictorian research documents the ways in which social origins, gender, and ethnicity interact with college environments to shape professional aspirations and achievement among top students. The mesosystem of valedictorians in high school includes interacting connections with family, peers, teachers, and guidance counselors, for example. For rural valedictorians, the mesosystem did not provide comprehensive information about college choices. Despite exceptional academic credentials, valedictorians from Midwestern farming communities were counseled only about in-state choices. Not a single rural valedictorian in Arnold's (1995) study chose an out-of-state undergraduate institution. Female high-school valedictorians who conducted undergraduate research, taught under a professor's direction, or took professionally related jobs before graduating were far more likely than equally talented women to aspire to and attain high educational and professional goals (Arnold, 1993). In addition to increasing the valedictorians' self-efficacy and cognitive complexity in ways that affected them across settings, professionally related experiences linked the women to the professional fields to which they aspired. Women's instigatory characteristics affected their choice of microsystems and their experiences within them. The ability to attract a mentor, directive beliefs about ability, and gender roles determined whether women entered and persisted in high-level achievement settings.

A second study examines the ways in which higher education produces national leaders in different historical eras by focusing on the achievement pathways of American Rhodes Scholars since World War II. Early findings show that prestigious baccalaureate origins are highly significant predictors of becoming a Rhodes Scholar and of later professional prominence (Youn, Arnold, & Salkever, 1998, 1999). For example, Harvard, Yale, and Princeton have led the production of Rhodes Scholars by a wide margin over the entire century of the Scholarship. Students attending these institutions are far more likely to become Rhodes Scholars than students attending any other institutions (Youn, Arnold, & Salkever, 1998, 1999).

Research on adolescents and college students repeatedly demonstrates the salience of peer groups' educational aspirations for individual outcomes (Astin, 1993b; Wachs, 1992). Proximal processes underlying this finding are still to be investigated; however, they probably include peer communication of family-influenced ambition, exchange of information, ideas, and "tacit knowledge" about advanced study (Astin, 1993b) and belief systems about talent and future possibilities. The effects of prestigious university attendance on potential Rhodes Scholars might be realized through the proximal processes of peer settings in which fellow students communicate normative expectations of achievement and share informed tips on elite educational and professional pathways. Connections with former Rhodes Scholars among the college faculty also serve to reinforce ambitious achievement goals within the microsystem of highly able students.

These findings support Bronfenbrenner's (1993) concept of ecological niches. In understanding the production of Rhodes Scholars, we might search for ecological niches where the peer group relates directly to academics. The residential college system of Harvard, Yale, and Princeton, for example, contains peer groups who have access to live-in faculty and a variety of cultural and intellectual events occurring in the residence. Arts majors and scientists spend extensive time in peer studio and laboratory groups devoted to academic activity. Students who participate in serious, ongoing study and project groups also engage in academically oriented peer microsystems. Increasingly complex activities characterize some peer groups that are not directly related to academics. Sustained self-governance activities, political activism, community service, and interaction with older students in mixed-class residence halls are all examples of microsystems calling for collective engagement in complex activities.

The microsystems of Rhodes Scholars tend to range beyond the classroom and residence hall. In order to demonstrate exceptional capacity for leadership, future Rhodes Scholars have used their instigatory characteristics to seek out and thrive in challenging microsystems. As an undergraduate, for instance, Bill Clinton actively sought work in the political arena. Having earned a job on Capital Hill, his personal qualities attracted the sponsorship of former Rhodes Scholar Senator William Fulbright (Maraniss, 1995). Understanding how their peer groups function to support high aspirations, achievement, and leadership would be an important microsystem study focusing on the interaction of Rhodes Scholars' personal characteristics and the features of their chosen settings.

Moving to the level of the mesosystem, researchers do not yet know how the totality of mesosystems affects students, or the extent to which personal characteristics affect mesosystem influences. We do know that a student's feelings of congruence with the environment affect educational goals (Tinto, 1987). Former high-school valedictorians illustrated the importance of congruence among individual traits, microsystems, and mesosystems. The first of the two women chemists centered her social life in a group of undergraduate and graduate chemists. "I remember the weekend that I first encountered the chemistry fraternity in college. . . . I realized that I felt comfortable with these kinds of people who were leading these kinds of lives" (quoted in Arnold, 1995, p. 247). A second female valedictorian, however, saw herself differently. "I just really can't see myself as a research chemist. None of my friends are chemists. I consider myself an academic chemist. . . . Maybe I'm just playing at being a scientist" (p. 121). Both of these women were straight-A students and each earned a PhD in chemistry. The "incongruent" chemist left the field without completing postdoctoral training, while the "congruent" student became a college chemistry professor. The congruence of significant others' beliefs about achievement also potentially influences mesosystem outcomes.

Congruence among individual characteristics, microsystems, and mesosystems could lead to the kinds of attitudes and behaviors that characterize Rhodes Scholars. Rhodes Scholars might be expected to demonstrate a synergistic level of congruence between their immediate settings, in which family, peers, and faculty act as reinforcing sources of support for academic achievement and leadership. Once again, an ecological framework offers a possible explanation of the uneven pattern of institutions producing Rhodes Scholars. The U.S. Military Academy, for instance, is the fourth-highest producer of winners over the hundred years of the Rhodes Scholarship (Youn, Arnold, & Salkever, 1998). West Point's emphasis on character, scholarship, leadership, and athletics touches students through proximal processes in virtually all of the settings in which they are present. These norms not only infuse the school's activities and symbols with synergism, they mirror precisely the criteria for selection of Rhodes Scholars. Like their peers at Harvard, Princeton, and Yale, West Point cadets are immersed in a highly congruent mesosystem that supports the development of candidates for Rhodes Scholarships.

The Rhodes Scholar story is not simply one of family background affecting college experiences. Rather, family background and individual characteristics affect the choice of college microenvironments. For talented students, peer relations within chosen microsystems reinforce achievement behaviors and aspirations. The collectivity of immediate settings, the mesosystem, is highly congruent in its messages, norms, and complex activities. This analysis echoes human aggregate models of environmental effects (Feldman & Newcomb, 1969; Holland, 1966, 1985) with perhaps additional emphasis on the multiplicity of ecological systems within a given higher education setting.

### *The Ecology Model Applied to Extant Research on Student Commitment and Persistence*

The mixed race identity and talent development studies incorporate the ecology model in their design, so it is not surprising that they support the application of the model to the study of college peer culture. We believe that it has broader applications and support in the higher education literature. In this section, we briefly introduce two such examples—one qualitative and one quantitative—related to student commitment and persistence, drawing from the work of Louis Attinasi (1989) and Scott Thomas (2000). In doing so, we recognize the potential risks associated with applying theory post hoc to another researcher's work; we do not mean to imply that Attinasi or Thomas would interpret their own work as we do here, though we believe that the case is strong for applying the Bronfenbrenner (1979, 1989, 1993) model to their work.

Noting that the major student retention theories were based on theories of suicide and disengagement from work, and noting that "an assumption *at the outset* that dropping out of college is like committing suicide or leaving a job turned out to be too severe a constraint upon the conceptualizing process" (1989, p. 250), Attinasi designed a study of Mexican American students' university persistence based on "two of the sociologies of everyday life—symbolic interactionism and ethnomethodology" (p. 251). Attinasi interviewed "eighteen students and former students from a single entering class of a large, public southwestern university. . . eight to eleven months following the end of their freshman year to obtain their perceptions of their college-going behavior during, and prior to, their freshman year" (p. 251). He organized his data into the main categories of "getting ready" (p. 255) and "getting in" (p. 262). In the "getting ready" category, key figures in students' microsystems (parents, friends, siblings, high-school teachers, campus people) communicated messages such as "You are a future college goer," "This is what you should do in college," and "This is what college will be like for you" (p. 256). These consistent, reinforcing messages built a supportive mesosystem in which study participants began to create for themselves the "expectation of what being a college student is like" (p. 256). Once at the university, and in Attinasi's "getting in" category of analysis, students negotiated a series of "getting to know" (p. 263) interactive experiences in on-campus microsystems.

In the language of a Bronfenbrenner-style analysis, Attinasi identified a set of microsystems of "getting-to-know experiences" as "peer knowledge sharing," in which other newcomers created a "cooperative exploring of [physical, social, and intellectual] geographies" (p. 264). This mesosystem of peer knowledge sharing occurred in locations Attinasi identified as "scaled down" (p. 264), where students could manage the complexity of their new environment. Students scaled down the campus in academic majors and extracurricular activities, microsystems easily identifiable in the Bronfenbrenner framework. A key theme in Attinasi's findings is that the *anticipatory socialization* created in the "getting ready" microsystems highlighted the developmentally instigative characteristics students would need to seek out or identify the supportive peer culture of the "getting in" microsystems encountered once at the university. Furthermore, Attinasi (1989) hypothesized that

> for Mexican American freshmen, the extent to which social integration influences persistence is not the extent to which it promotes the individual's moral conformity to the institution but rather the extent to which it endows the individual with the capacity to cognitively manage the university environment, that is, helps him or her to perceive the physical, social, and academic/cognitive geographies as negotiable. (p. 270)

In contrast to Tinto (1987/1993) and Weidman (1989), Attinasi proposed that it is not the normative pressure of peer culture that causes students to persist, it is the knowledge gained through peer microsystems that enables the student to develop the ability and the self-confidence to persist. Seen through the lens of Bronfenbrenner (1979, 1989, 1993), the "proximal processes" Attinasi's participants encountered in multiple, interacting microsystems over time (via the chronosystem) formed a mesosystem that supported their persistence in college.

Thomas (2000) also applied peer culture research to persistence, using a methodology sharply contrasting with Attinasi's (1989). Building on Tinto's (1987/1993) Student Integration Model and numerous subsequent studies that tested Tinto's model, Thomas used LISREL to estimate a model of the social networks and social integration of first-time first-year students at a small, private liberal arts college. Among the data Thomas collected were "information on students' commitment to educational goals, confidence in their choice of college, and expectations for the first year" (p. 598) as well as items related to integration from a Pascarella and Terenzini (1980) survey, and "questions tailored to capture different aspects of students' experiences to that point in the academic year" (p. 598). Thomas also asked each respondent to provide the "names of those students with whom they frequently spoke and the dimensions on which they related to these other students (e.g., close personal friend or a source of academic or social advice)" (p. 595). With 322 usable responses (an 85% response rate), Thomas had a wealth of data from which to theorize the influences of social network through elaborate statistical analyses.

An important contribution of Thomas's (2000) study of how peers influence college outcomes is "a new perspective for understanding student integration—a perspective in which integration is expressed as a function of individual social ties" (p. 608). His decision not to limit respondents to a certain number of "best friends" or "close acquaintances" (as some other studies have done) allowed him to explore the differential effects of students' social networks along five variables: (1) the number of acquaintances named by each student; (2) the number of times a student was named by someone else; (3) the degree to which a student is connected to other more highly connected peers; (4) the degree to which a student is connected to her/his immediate peer group; and (5) the degree to which a student is connected to students outside the first-year class (pp. 603–604). Thomas also created clusters of students who named one another and developed a system to classify these reference groups into cliques of various sizes based on the number of intermediaries required for a student to connect to another given student in the clique. In effect, Thomas created a map of the peer micro- and mesosystems of the 322 respondents.

Thomas concurred with Attinasi's (1989) findings, in that the "measure of centrality (the degree to which a student is connected to other connected students) was found to have a small but direct positive impact on persistence" and that "student networks can and should be viewed as pools of social and academic resources from which students draw" (Thomas, 2000, p. 607). He also found that "students with a greater proportion of ties falling within their own peer group are slightly less likely to persist even after controlling for all other variables in the model" (p. 607). In other words, the more peer microsystems in which a student engages, the more complex her or his mesosystem, and the more likely she or he is to persist.

Taken with the Thomas (2000) and Attinasi (1989) findings, the Bronfenbrenner (1979, 1989, 1993) model suggests that the more rich and deep the peer mesosystem, the more likely a student is to acquire the knowledge, skills, and confidence to persist in college. Persistence is, of course, only one college outcome that can be studied using ecology models. Examining the influence of the mesosystem of peer culture on various definitions of academic success, personal development, and identity construction may also benefit from an ecological perspective that, like Thomas's (2000) model and Attinasi's (1989) analysis, emphasizes the interactive and cumulative effects of student peer networks.

### *Conducting Ecological Research on Development*

Conceptualizing development as interactions within a nested ecology of micro-, meso-, exo-, and macrosystems provides a much-needed framework for studying the combined processes and influences of college peer culture. Bronfenbrenner's work (1979, 1989, 1993) suggests several approaches to studying college peer culture as mesosystem. First, the nature of microsystem formation and access is critical to understanding individual development and campus culture. Ecological niches support certain kinds of development, but every student does not have access to every niche. Multiracial students who were able fully to participate in monoracial groups had different experiences from their peers who were not allowed access to those settings. Students who find peer groups that support achievement study longer and enjoy school more than those who do not (Steinberg, Darling, & Fletcher, 1995). Who finds which peer group, how, and why they stay together (or not) is important to understanding what happens in the "black box" of peer culture.

The second central issue for research has to do with the content of interacting settings. What is the extent to which the mesosystem has engaged the student in reciprocal activities that become progressively more complex? Are the norms, values, and expectations congruent across microsystems? For instance, has a curriculum including opportunities to learn about identity construction complemented an increasingly complex exploration of race, culture, and identity in friendship groups and campus activities? Rhodes Scholars are selected partially on promising demonstrations of leadership. Their leadership settings involve complexity, self-direction, and connections to high-level people and professional settings (Rhodes Scholarship Trust, 1995). The congruency across these microsystems supports talent development at the highest levels of traditional societal recognition.

A third key question for research asks how peers moderate the influence of faculty at the levels of peer reference group affiliations and immediate social networks. The direct and nonverbal messages about academic achievement probably differ systematically among reference groups like "jocks," "druggies," "politicos," and so forth. Martínez Alemán's (2000) work on the learning outcomes of college women's friendship groups is a rare example of mesosystem research connecting friends and academic settings. Potential Rhodes Scholars at Harvard, Princeton, or Yale find themselves with bright, ambitious peers who generally support an ethos of high achievement and intellectual seriousness (Zweigenhaft, 1993).

In addition to opening a window on the processes of development, the ecology framework suggests several research designs, corresponding to environmental levels of analysis. We can begin from the "inside out" with the individuals and their developmentally instigative characteristics, examining proximal processes as the link between variability in environments and variability in individuals. At the next level, we can study differences within and between mesosystems. This research could occur at one institution, comparing identified subgroups of students (defined by identity, activities, or academic progress) or across institutions, comparing patterns of mesosystem formation, content, and operation. Exosystem research will become increasingly important as technology enables students to be influenced more and more by microsystems outside the institution. What decisions made in other settings (workplace, family, state legislature, etc.) will influence distance learners? How will these decisions interact with institutional decisions about curriculum, residency requirements, and student status? Macrosystem research provides a venue for understanding higher education in a cross-cultural, historical context. The macrosystem is made manifest in changes in individual development and outcomes. Time, represented by the chronosystem, is the critical element in longitudinal or historical cohort research.

Higher education studies utilizing full person-process-context-time (PPCT) models have not yet been produced. Without models of PPCT studies in higher education researchers must turn to qualitative and quantitative examples from related fields. Most research based in Bronfenbrenner's theory comes from developmental psychology studies of childhood and adolescence. A good example of mesosystem educational research is Steinberg, Dornbusch, and Brown's (1992) large sample study of ethnic differences in adolescent school achievement. The researchers sought to explain persistent ethnic differences in academic achievement by examining interacting student contexts. The widely replicated finding that authoritative parenting predicts psychological competence but not school performance for all ethnic groups was the starting point for the investigation. An ethnically and socioeconomically diverse sample of 15,000 high-school students completed a battery of questionnaires on family, schooling, achievement attitudes, extracurricular, work and friendship settings, and psychological adjustment. A cross-section of students and parents also participated in semistructured interviews.

Academic performance of White, Hispanic, Asian, and African-American students each showed different patterns of interacting effects among parental practices, peer group norms and values, and students' directive beliefs about school success. As the researchers state: "ethnic differences in school performance can be explained more persuasively by examining the interplay between the major contexts in which youngsters develop—the family, the peer group, and the school—than by examining any one of these contexts alone" (p. 724).

While praising the ecological approach of the research, Bronfenbrenner (1993) pointed out that Steinberg treated family structure, socioeconomic level and other individual variables by controlling them in a series of regression equations. His criticism of this procedure

> is based even more on theoretical than on methodological grounds. The grounds are that such an analytic procedure assumes that the processes or relationships under investigation operate in the same way and to the same degree with respect to each of the person and context characteristics being treated as control variables. It is precisely this assumption, of course, that is challenged by an ecological paradigm. It is not that the paradigm rejects the assumption as invalid a priori, but rather that the question always be left open both as a theoretical and empirical possibility. (p. 34)

In addition to treating key nonenvironmental variables as outside the analysis, the Steinberg study did not focus on exosystem, macrosystem, or chronosystem levels of the environment. Glen Elder's (1974) study of the lives of Depression-era children, in contrast, focused on the interactions among historical events, family circumstances, individual psychological resources, and environmental opportunities. Elder's three-generation longitudinal study shows both the force of history and its differential effects according to individuals' circumstances, dispositions, and experiences. Elder also addressed nonenvironmental variables as central to his design, for example by analyzing interactions between life course factors and the age of individuals during the Depression. Both gender and age during parental unemployment strongly affected how individuals sought and benefitted from life experiences.

These two exemplary studies from developmental psychology provide concrete examples of PPCT research concentrating on various levels of the environment. Higher education researchers can begin to use ecological designs by focusing on interactions among specified levels of the environment. We can also reexamine existing data sets by comparing processes in different environments and conducting separate analyses for different kinds of students. Elements of the environment can be used to frame research at various levels of the ecology. As a starting point Wachs (1992) suggested that to be most effective, research on environmental influence should include at least two distinct microsystems, at least two subgroups of individuals, and at least one potential covariate and one alternative context.

### *Implications for Interventions*

Human ecology theory is more than a framework for explaining and studying the processes of student development; it is a useful guide for educational practice. The ecology model accounts for the specificities of time, place, and culture, as well as differences in students' backgrounds and similarities in their experiences once in college. Analyzing student development as a series of "microprocesses in a macroworld" (Bronfenbrenner, 1989, p. 31) allows for a model that contains the critical element of peer culture interacting with chronosystem effects of family and prior schooling, as well as exosystem effects such as university policy.

What are the possibilities for such a model? To be sure, the ecology model can be used to understand the development of individual students. Counselors and advisors could work with a student to create an individual life history and map the landscape of her current ecology. Such a strategy could be useful, for example, in career counseling and academic advising, allowing a student to see how her ideas about potential careers have been shaped by features in her development. Critical pedagogy, similarly, relies on students becoming aware of their situatedness in time, place, and culture. The most far-reaching interventions, however, reach beyond individual counseling and classroom situations. Wachs (1992, pp. 153–156) recommended five principles for child development interventions that can be adapted to higher education:

- intervene simultaneously at multiple levels of the environmental system,

- tailor interventions to the context in which the student is functioning,
- provide a variety of microenvironmental contexts to all students to use their individual characteristics and prior experiences to seek out preferred ecological niches,
- provide different interventions so individuals can seek matches with their specific characteristics, and
- build stress buffers into environmental interventions.

These principles are familiar to student affairs professionals who have attempted to convey educational messages about alcohol or academic honesty through residence hall sessions and athletic team meetings, by taking a program to students' locations (such as a commuter student lounge or a cooperative education workplace) or by using comprehensive "social marketing" approaches (Andreasen, 1995). Perhaps already familiar, these principles have not always had the theoretical backing that the ecology model provides.

The application of the ecology model in broader settings could be useful to higher education administrators and policymakers. By taking the view that peer culture operates in interaction with institutional systems and in the macro-context of society, we can examine the dynamic nature of peer group interaction. Such an examination could be applied to student learning to explore questions such as: What microsystems seem to be most meaningful to student learning? Are there variations among the same type of microsystem? Do certain types of academic microsystems, for example, influence learning in different ways from other types?

An ecology approach to student learning could also be used to explore student agency. Do students consciously construct their micro- and mesosystems to maximize learning? If so, how? If not, how are their environments constructed? Do students who consciously construct their own environments learn differently from students whose environments are constructed through the exosystem of administrative and faculty policy? How does the chronosystem affect student agency in creating, sustaining, and leaving various microsystems?

In a final example, an ecology approach could be used to examine the mechanisms of peer culture and student learning on an institutional level. To what extent are students mobile within the mesosystem? Can they move easily among microsystems or are there barriers to mobility? What are the points of connection and disconnection between faculty, administrative, and student micro- and mesosystems? Do the influences of the administrative and faculty exosystems vary among residential, commuter, adult, full-time, and part-time students? Is it desirable to alter these levels of influence, and if so, how could it be done?

The answers to these questions could be used to consider alterations to the campus environment for specific purposes. These purposes might include adopting curricula, changing attitudes and behavior about alcohol and drugs, or designing initiatives to address campus race relations. Initiatives to address ethical and moral development could be viewed within the context of the entire institutional environment. An ecological approach to peer culture accounts for the ever changing nature of the student body and the institutional environment and emphasizes the connecting links between administrative, faculty, and student contexts.

## *Conclusion*

Bronfenbrenner's (1979, 1989, 1993) model holds great potential for higher education research and practice. Adequate description and effective intervention require analysis at the levels of individual, microsystem and peer culture, as well as the distal settings of exosystems and the larger societal forces that influence developmental possibilities. In inviting contextualized explorations of interactions among and between people and environments, human ecology provides the theoretical underpinning necessary for a wider, more complex view of peer culture. Ultimately, such an approach may be the best way to inform research and practice as we seek to understand and influence the college experience of an increasingly heterogeneous student population.

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# Science First

## Contributions of a University-Industry Toxic Substances Research and Teaching Program to Economic Development

In spite of ongoing concerns about how to protect the core mission of the University when it tries to meet the needs of industry (Campbell & Slaughter, 1999), most universities are expanding their programs that link university researchers and industry in a diverse set of relations aimed to address social and economic development goals (Cote & Cote, 1993, p. 71; Geiger, 1992). These programs do not link universities and industry for the first time (see for example, Etzkowitz, 1997; Osborne, 1990), but they aim to speed up the process of technology transfer and to remove barriers between knowledge production and its application (Rogers et al., 1999). Increasingly these linkages involve collaborative research programs in which industry funds all or part of university based research projects that are jointly selected with industry because of their high priority for particular firms. However, in some instances university resources are being asked to address a pressing public need for knowledge, workers, and technology in an emerging industrial field without established firms able to identify or fund collaborative projects, and in fields where the academic foundation for it is lacking as well.

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This article addresses the latter case, asking the question: Do university-based research programs without direct funding and collaboration from industry effectively transfer technology and increase economic development in emerging fields? Using the Toxic Substances Research and Teaching Program (TSRTP) at the University of California as a case study, this article will show how this program emphasizes scientific work on the problem of toxic substances but, nonetheless, has contributed to economic development and growth of the environmental technology industry. Two examples provide a context for our analysis.

> Eric Gilbert, a doctoral student in the Environmental Toxicology Graduate Program at the University of California, Riverside, won the 1996 Collegiate Inventors award for discovering a chemical that works with bacteria to biodegrade the chemical PCB, a common toxic pollutant found in the soil of many contaminated sites. Gilbert worked in Professor David Crowley's lab with funding from the TSRTP, where they searched for a nontoxic chemical that could induce cometabolism of PCBs, since it is known that some bacteria can biodegrade PCB only in conjunction with another substance. Gilbert discovered that carvone, the aromatic chemical compound in spearmint, could be mixed with the bacteria to cometabolize the PCBs, making them nontoxic. This is an important discovery, since it could lead to low-cost field scale technology for remediating sites with PCB contamination. The discovery led to collaboration with EcoSoils Systems of San Diego, a company that manufactures bacteria fermentors able to be located near the polluted site and that operates irrigation systems to apply bacteria to soils. The research led to five academic publications and a patent for the process. Gilbert has since taken a professorship position, continuing this line of research, and the lab has received additional funding to continue research and applications using equipment provided by EcoSoils.
>
> University of California, San Francisco, researcher Dr. Leslie Benet has received funding for his lab and graduate students through the TSRTP, where they have focused on the problem of orally administered drugs not being absorbed into the body. He discovered that the problem was not the commonly accepted explanation that the drugs were insoluble or unable to permeate cell membranes, but that the body treated them as toxic substances and either metabolized them in the intestines or pumped them back out of the cells by a transporter if they got that far. Through basic research, the lab team discovered both the enzyme that was neutralizing the drugs and an inhibitor of it that will permit absorption of beneficial drugs. Benet patented his discovery through the campus and later founded a company to produce and market it. The company has grown from 8 employees in 1996 to 11 employees in 2001, including several scientists who were students funded by the program. Clinical trials of the inhibitor are nearly completed now, and the company is expecting to expand rapidly as commercial production begins.

These two examples seem to be university research as usual, but in fact they are a result of an innovative research program of the 9-campus

University of California system. In the early 1980s California was faced with overwhelming pressures to manage toxic substances, which were causing air and water pollution, health hazards, disposal and cleanup crises, and untold legal and regulatory problems. Finding neither existing industrial capacity nor expertise capable of solving the problems within the state or elsewhere,.the state turned to the University of California to establish a new program of research and teaching that would result in a cadre of trained students and a body of research that could be commercialized. As a field, research and teaching in toxic substances was minimal, and even the established faculty with interests in toxics were dispersed throughout many campuses, disciplines, and departments. California hoped that an early-stage university program would establish not only the intellectual basis but also the economic foundations for an environmental technology industry that would expand capacity in both the private sector and government regulatory agencies.

In the first example, finding a biological solution to removing PCB or related chemicals from contaminated soils is one of the most important environmental concerns of those working on toxic cleanup. The student's research, however, is an outcome of the incentive funding of the TSRTP, which provided funding for students and seed money for faculty to obtain additional research funding. As part of the TSRTP, the faculty and graduate students were able to work on the scientific problem of biodegrading toxic substances. Once the discovery was made, its conduit to commercial firms was speeded up because of linkages between the university and the growing environmental technology industry. The second example also benefitted from TSRTP funding of students and research, leading to an invention, patent, and eventually a new business that created new jobs. The basic research in toxics supported by the TSRTP provided a new perspective on a pharmaceutical problem that previously had not been considered a problem of toxics, but because of the network of collaborators in a multidisciplinary research program involving public health and epidemiology from several campuses, the toxics paradigm proved beneficial. In both examples, the links to industry were quick and beneficial, and both were facilitated by the catalytic role that the TSRTP had in bringing many other resources to focus on a toxics problem.

Although there are many models for university-industry technology programs (see Feller, 1988, pp. 236–237; Senker, Faulkner, & Velho, 1998; Walshok, 1995), we distinguish two contrasting models here—problem-based programs versus project-based programs, or what Etzkowitz (1997, p. 418) calls "science-push" aimed at solving a scientific problem, versus "firm-pull" organized around joint efforts to complete projects of interest to firms. Both these types of industry relations contrast with traditional disciplinary research centers or specialized institutes driven by fundamental basic research agendas (Stahler & Tash, 1994). The most well documented university-industry programs are firm-pull, in which firms and industry associations collaborate with a university research center to do a specific project of interest to the industrial partner, who also provides significant financial support for the project. Examples include the University of California's Micro program, New York's CAP (Feller & Anderson 1994), Ohio's Edison Centers (Mt. Auburn Associates 1992), Pennsylvania's Ben Franklin program (Etzkowitz, 1997, p. 418), or Ontario's Centres of Excellence (Bell, 1996).

In contrast, a science-push program identifies a generic problem faced by industry or the public and then mobilizes university scientists to do research on it and come up with a solution that can be rapidly commercialized. These program-oriented strategies are less visible and have not been as well documented as their more targeted alternatives. A science-push program is primarily shaped by strengthening university research programs (Feller, 1988, p. 236) to help solve a public or industrial problem and generate economic development. Typically, these programs are characterized by university dominance in the selection of topic, time frame, and financing, with immediate industry needs secondary. While faculty running a science-push program typically consult with industry leaders, industry usually is a passive participant rather than active leader in the process. Geiger (1992, pp. 276–279) notes that these generic research efforts can be commercialized through faculty consulting arrangements, memberships on science advisory boards for industries, personnel exchanges with industry, and other strategies. However, as Etzkowitz, Webster, and Healy (1998, pp. 5–6) point out, most science knowledge is transferred to industry by way of academic publication, and of course, by students being hired.

The purpose of this article is to report on how the University of California Toxic Substances Training and Research Program (TSRTP) used a science-push model of promoting industry through teaching and research, leading to considerable economic development. Since benefits from different programs are so hard to quantify (Feller, 1988) this is not a comparative study suggesting that science-push programs are better or worse than project-oriented university technology programs. The goal is simply to show that a science program addressing pressing public needs can have benefits similar to what has been accomplished by programs with direct industry involvement, contrary to the admonition in the literature best summarized by Osborn (1990, p. 57): "Put business in the driver's seat." Of course, such programs will succeed only in limited cases, which will be outlined at the end of the article.

### *Impacts of University-Industry Technology Programs*

Although considerable research has shown that universities contribute general economic benefit from research and from students who graduate, much still needs to be learned about how that contribution works, especially the role that graduate students play in stimulating new industrial directions. One model for this research is Feller and Anderson's (1994) detailed cost-benefit evaluation of the New York State Centers for Advanced Technology Program (CAT), a project-based university-industry program. Their study is a valuable contribution to our understanding of the benefits of a broad multidisciplinary approach to science and technology programs with strong links to industry. By focusing on measurable benefits to firms networking with the CAT program, Feller and Anderson verify the positive impact of state programs that contribute to the research and graduate-education capacities of research universities linked to Fortune 500 companies. The authors demonstrate that public investments in university-based technology programs significantly leverage total economic impacts, concluding that:

> estimated total state benefits related to increases in private-and public-sector research grants, technological innovation and increased productivity, increased or retained employment, and improved quality of the technological workforce ranged between $190 million and $360 million, or between three and six times New York's direct investment in the CAT program. (Feller & Anderson 1994, p. 127)

While Feller and Anderson show a significant economic benefit from the CAT program, their study also illustrates difficulties in applying cost-benefit principles to the evaluation of these programs, such as inadequate data and the need to use estimates for many benefits. For example, the economic benefit of training students who were part of the CAT program was estimated on the basis that students in the program would contribute to their new employer one year earlier than employees without the special training (Feller & Anderson 1994, p. 137), a value assumed to be $50,000 per year. Also, they did not include information on the direct impact of other university activities, such as publication or creating stronger academic fields of benefit to industry or the public.

In spite of data problems, the analysis of CAT and related programs suggests that project-based science-pull programs are beneficial because they speed up the transfer of technology and expertise from university labs to firms in a promising field. The university knowledge base can serve as the intellectual capital supporting industrial growth, providing the foundation for applications and ongoing research, which provides an expanding job market for students trained in the new field, and ultimately the commercial application of the research through new or improved products, processes, or regulatory procedures.

The science-push model works in a slightly different way. The program stimulates attention from faculty and students on a generic problem receiving public attention, creating a critical mass of research interest and expertise in a new field, which speeds the academic work applicable to industry. This also creates trained and skilled students who enter industry, bringing with them new technological skills being forged in university labs. Some students, such as Eric Gilbert, continue the research efforts by becoming academic researchers. Along the way the pressing public need for useful results is reinforced, leading to technology and products that can be commercialized in the new industry. The emphasis is not on developing technologies in the university labs that have direct conduits to particular firms, but developing a generic knowledge base supported by ongoing research and publications, which will be carried by students into their new workplace, or discovering things that can find quick acceptance by appropriate firms.

While there are many evaluative frameworks for assessing university-industry programs, our approach is not to attempt a formal cost-benefit evaluation that measures the scale of impact of the program relative to costs. We agree with Feller and Roessner (1995), who note that firms benefit in complex ways from university research partnerships and that the benefits from research programs are so "commingled with other related activities that it is not possible to isolate the contribution of specific events to larger outcomes or to attempt anything approximating a rate of return or cost/benefit analysis." Instead, our approach is to trace how a problem-oriented university-industry program delivers economic benefits similar to those of the more common project-oriented program.

Based on analyses of a range of university-industry programs (e.g., Geiger, 1992; Matkin, 1990; Rogers, et al., 1999), various types of economic benefits can be expected from a university technology program. Etzkowitz (1997), for example, suggests a focus on technology transfer (knowledge), job creation, and firm incubation. Feller and Anderson (1994, p. 132) identify impacts in terms of external income from additional research grants and patent income, new products and companies, increased or retained employment, and higher quality workforce. Rogers et al. (1999, p. 703) emphasizes knowledge generation through publications, employment of former graduate students, spin-off businesses, and benefit to education (which is of less concern here). Reclassifying these interrelated factors, three major benefits can be expected from university-industry programs:

1. *Knowledge Benefits.* University technology programs are catalytic to the generation of knowledge within and outside the academic institution. The science-push program format gives emphasis to basic knowledge that becomes the basic building blocks supporting employment growth and firm creation. Basic research, as opposed to applied technology, does not always foresee products that can be sold by industry, and in many cases the firms potentially interested in the products are either small, unknown, or initially uninterested. One of the major objectives of a science-push program is simply to extend basic research as a scientific enterprise, with additional grant money and an expanding academic literature. In this way, knowledge, which is the most important of the university contributions to economic development, helps form new fields and subspecialties within the disciplinary structure of universities. In addition, a knowledge based program will assemble a critical mass of researchers to be competitive for grants and productive in publishing in an interdisciplinary field. Grant money and publications are measurable impacts.
2. *Employment and skill benefits.* A science-push university-industry program is much more likely than a project-based program to emphasize that its benefits are transmitted to industry via the knowledge carried by students who obtain employment or via spin-off firms that commercialize specific technologies. The key is that without the program students would not have the skills and credentials needed to fill available environmental technology jobs, but more importantly, without the knowledge base and its growing commercialization in existing firms and spin-offs there would be no employment demand either. Key employment benefits of a program such as this include the jobs created, the leadership assumed, and the organizational expansion derived from the special contributions that a trained person makes in an organization. The environmental technology industry is notoriously driven by governmental regulation, and in fact, the government works hand in hand with industry in shaping needed products as well as possible environmental solutions. While graduates of university programs are expected to find jobs, and they did not need the TSRTP to help them become employed, the benefit of the TSRTP is that it helped develop jobs in a particular industry or field that needed university research input.
3. *Technological applications and product innovation benefits.* Science-push programs do not measure their success only by the development of the new product or technology they set out to de-

velop, as would be expected with other university-industry programs. The university input is further away from the commercialization end of product development. However, when doing basic research the discovery of patent-worthy products and inventions can occur, as in the two examples leading this article. Technology transfer objectives include the development and deployment of new technology, new industrial processes, and new management approaches. Many of the important benefits from technology transfer occur when trainees work for industry after graduation. Since the toxics field is emerging, the industrial applications and industrial structure are neither clear nor well structured. The awareness of opportunities to put research to practical use allows graduates to generate products that start businesses and lead to a concentration of interrelated businesses.

The three benefits of university programs are themselves linked. The graduates find jobs based on their university training where they both generate knowledge based on external funding and help expand employment or create firms, which then leads them to develop new innovative products and patents. Other graduates develop a product, which then leads to the creation of a new firm or a new division of an existing firm, where more research is done and the product is marketed. Graduates also flow back and forth between industry, regulation, and academia, most often delaying work in the private sector while pursuing academic careers for a while.

## *The Toxic Substances Research and Teaching Program*

The Toxic Substances Research and Teaching Program of the University of California is an excellent case study of the complex economic impacts of a problem-based university-industry technology program. The TSRTP provides specialized funding to support training and research related to toxic substances for graduate and postdoctoral students (and a few selected undergraduates), at the nine University of California campuses and the affiliated National Laboratories (Livermore, Berkeley, and Los Alamos). This strategy was consistent with Tornquist and Kallsen's (1994, p. 536) finding that "an increase of resources to high-quality faculty located in established research departments is likely to produce the type of research industry is looking for." The program was established by the state legislature to help provide new research findings and scientific talent essential to solving the problems of toxic chemicals in the environment, problems that both were a barrier to economic growth and an opportunity for economic growth. At the time the program was established, research and teaching on toxics was dispersed across many fields and campuses, lacking a consistent focus that would lead to either strong academic research or practical applications. Thus, the program was intended to serve as a focal point for communication about toxics among researchers, industry, the government, and the public.

The TSRTP as a problem-based program can be contrasted to New York's CAT program (Feller & Anderson, 1994). Although both are multicampus programs and have generated external linkages with high technology firms, they operate in quite different ways. Unlike the New York program, the California program supports existing labs and research programs rather than setting up new facilities and administrative units (except for a small office to disperse funding), requires that funds go to support students and postdoctoral research positions, does not require matching industry support for particular projects, and does not consider technology transfer a primary objective. Probably the most significant difference is that the TSRTP program is a teaching and research program in toxic substances, a multidisciplinary applied research field that lacked a solid footing (at least in California) before the program started. The model was to mobilize faculty to work on this new field, develop a body of research drawing upon expertise in multiple disciplines, and train graduate-level students to both staff new academic programs or to go to work in government regulatory agencies or private businesses. The program from the start has had strong linkages to industry, through advisory boards and explicit linking of academic and industry experts. Commercialization successes are reported in newsletters and at conferences. A total of eight industry leaders are on the TSRTP advisory committee, including representatives of Chiron, IBM, Amgen, and Tosco Oil. Representatives from up to ten large corporations and some smaller firms have attended statewide TSRTP conferences over the last several years.

In contrast, project-centered programs such as New York's CAT program let industry-driven technology transfer goals direct its research agenda, and they assume that teaching and training students will be accomplished as a matter of course. As well, the CAT program relies for partnerships on an existing industry that is aware of its research needs, not one that is newly forming. These two approaches represent different models, and the comparison of these different approaches is a critical policy issue for ongoing analysis, magnified by current concern over increasing industry funding of research.

Over the first ten years of the program (academic years 1985–1995), 661 students and postdoctoral researchers graduated after receiving TSRTP funding. This funding typically consisted of research funding or fellowships for graduate students to work in collaboration with faculty members who were part of the program at one of the nine University of California (UC) campuses. Lead campuses for different components of the program were established: At Los Angeles (UCLA) the program brought faculty from Nuclear and Aerospace Engineering together with Civil and Chemical Engineering to focus on the process of risk assessment and standard setting; The Health Effects program brought together experts in molecular biology from UC San Francisco with epidemiologists from the School of Public Health at UC Berkeley; The fate of target species of birds and fish along with Ecotoxicology became the program focus at UC Davis; The Coastal and Marine Toxicology program was established in 1987 in response to a specific request from the state of California to study toxics issues in the bays, estuaries, and ocean coastal areas.

The essence of these problem-based programs was to mobilize multicampus and multidisciplinary collaboration to solve challenging applied research problems. As soon as significant external funding and/or stable institutional resources were available to support a program focus, TSRTP resources were shifted to a new area. Internally, the program emphasis was on building interdisciplinary teams that could compete for large-scale external funding for research center support in addition to individual faculty research grants. These dual focuses of seed funding and team efforts leading to center funding helped use a small amount of state funding to attract larger amounts of external funding in areas that were of high priority to the state.

From 1985 to 1995 the TSRTP trained students and postdocs through approximately $15 million in grants to over 150 faculty research sponsors. The program helped faculty develop interdisciplinary research groups that would continue funding students and postdocs beyond a nominal two-year limit on the use of TSRTP funds for any one individual. This investment by the state in funding toxic substances research has helped the faculty and campuses to win an additional $270 million in funding from other sources. One example of leveraging research funds from other sources is the success of TSRTP-funded teams in winning three of the original five National Institute of Environmental Health Sciences (NIEHS) Superfund awards, resulting in more than $30 million dollars in research funds being awarded to campuses of the University of California. It is not claimed that the seed funding generated faculty grants, because faculty get grants anyway. What is credited to TSRTP, however, is the leverage of faculty interest and organizational support into the toxics field, especially the capacity to obtain center funding.

### *Research Approach*

In this report the economic impact of the TSRTP is evaluated through the graduate students and postdoctoral researchers who graduated from the program and generated benefits to the economy based on skills and technology developed through campus research. We attempted to survey all students who received TSRTP funding between 1985 and 1995.[1] The most daunting challenge (and time-consuming part of the project) was to find current addresses for students who had been funded by the program up to twelve years earlier. The addresses of some former trainees were available in TSRTP's records, but most of these records dated to the period of funding and were no longer current. Faculty advisors were a good source for some current addresses, but in many cases advisors had lost contact with their former students. Addresses of former trainees were also located by searching University of California alumni and departmental records, networking with former trainees from similar years, searching e-mail and internet lists, and carefully examining professional association membership lists.

Of the 754 students who constituted our initial study population, 93 potential respondents were eliminated from the survey because they were still students or because they actually received no direct funding from the TSRTP. The study universe was the remaining 661 students. Current e-mail or mail addresses were found for 378 student (57%). Trainees who had been undergraduate students were harder to find (33% located) than those who had been graduate students and postdoctoral researchers (64% located).

A survey was administered to all those trainees who were located. The survey instrument consisted of 27 questions. An interesting aspect of the survey design was the use of e-mail whenever possible. Two versions of the survey instrument were prepared—one for e-mail delivery and one for postal delivery. The text of the questionnaire was essentially identical in the two cases, except that the e-mail version had a cover note that included instructions about how to fill out the e-mail survey to allow for automated tallying using a script written in PERL.

In both cases, following the Dillman (1978) total design method, at least four attempts were made to obtain information from all former trainees for whom addresses were available. In the mail survey, the questionnaire was mailed, followed as necessary by a reminder postcard and then a second copy of the survey, with the final mailing sent by certified mail. In the case of e-mail surveys, the final was marked urgent. Many respondents reported that they appreciated the e-mail version, but we have no way of knowing how many nonrespondents failed to receive the e-mail questionnaire because they no longer used the available e-mail address. Overall, the problem of poor addresses required additional phone calls and further efforts to locate students who moved using the techniques described above.

The response rates to both the e-mail version and the mail version of the questionnaire were essentially the same—63% for the e-mail questionnaires and 65% for the postal questionnaires. These rates represent an excellent response for those former trainees for whom adequate addresses could be located. Nonetheless, some bias remains from our inability to find addresses for all the graduates. Respondents for whom addresses are available are likely to be more professionally active and visible, maintaining contact with the university departments and having memberships in professional associations that maintain membership directories. They are also likely to be more involved with the toxics field as opposed to other professional directions.

These initial data were supplemented by two additional data collection efforts. During the summer of 2000 we again contacted the students for whom we had available e-mail addresses and asked them about their employment and economic development contributions. Through repeated requests, an 80% response was achieved to the follow-up survey. The project also surveyed 220 faculty at the multiple campuses of the University of California who had received support from the TSRTP, primarily by e-mail. We received 143 responses, for an overall response rate of 65%; another 10% were not reachable because of bad addresses due to death, retirement, or moving from UC with no forwarding address. The data from the supplemental surveys are utilized to support the overall findings and strengthen the empirical basis of the analysis.

### *The Economic Development Impact of the Program*

The TSRTP helped expand research, employment, and products in the toxics field at a level that shows the potential of a relatively small public investment to leverage many other resources to generate the core of an environmental technology industry. The program stimulated the emergence and growth of toxic substances research and teaching groups with the result that faculty get grants and publish research, students graduate and go to work in businesses and governmental regulatory agencies where they create environmental technology divisions, start toxics-related firms, help commercialize new technologies, and find economically viable solutions to toxic substance regulation. The program also helped to create a "social structure of innovation" (Feldman, 1994), and it addressed the primary barriers of economic development by addressing what Walshok (1997, p. 23) claims is higher education's central problem—the "difficulty in communicating and collaborating across knowledge boundaries separating spheres of expertise and authority." Consistent with other programs such as CAT, the TSRTP had its goal to do what universities usually do, but in a "particular line of research and in collaboration with specific sets of partners." (Feller & Anderson, 1994, p. 133).

In the following sections we summarize the data on the economic impact of the TSRTP in each of the three ways the program benefitted the state's economy and the solution of toxic substance problems—by contributing new technological knowledge, by generating employment opportunities and new businesses, and by innovations that apply the technology to commercially viable products.

### *1. Benefits from Development of Multidisciplinary Technical Knowledge*

TSRTP has helped develop within California the technical expertise and knowledge needed for both the public and private sectors to address the long-term economic, environmental, and public health challenges posed by toxic substances. This basic science and technological expertise has provided direct and indirect economic stimulus through the technical and policy advances generated by TSRTP-funded research, the ongoing research of trainees funded by the program, and the application of the research to societal needs. The program, with its focus on research and training, started by increasing the basic knowledge directly related to toxic substances and more generally to the literature in the field.

A primary indicator of the central role of the program for recruiting students to the toxics field is responses to a question about how much impact the funding received from the TSRTP had on the subsequent development of their careers. As shown in Table 1, nearly two of three students replied that this program was a turning point or very significant in shaping their direction of work and research, giving them a focus on toxics that might not have otherwise been of interest. The students in the program were admitted to the University largely independent of funding from TSRTP, into departments where they would pursue a number of alternative specializations. The goal of the TSRTP program was to attract academic interest to topics related to toxics, and the data show that two thirds of the students responded to the incentive.

More interesting is the similar role that TSRTP funding had on the faculty. When asked the same question, about 60% of the faculty who responded to the faculty survey said that the funding from the TSRTP had a significant impact or was a turning point in directing their careers toward toxics subjects. Moreover, the seed funding and lead campus components of the science-push model had a stronger impact on faculty associated with these programs. When looking only at the 41 faculty in a program that received multidisciplinary collaborative grants in the form of center funding, a whopping 85.4% of faculty reported that the TSRTP program was a turning point or had significant impact on their career. This shows that the concentration of resources into centers led to more intense focus on toxics. However, among the faculty not in centers, nearly half (50 of 102) still reported a turning point or significant impact from their TSRTP grants on their career.

The faculty credited the TSRTP with broad impact on changing their research and teaching. For example, 22% of faculty respondents said that "TSRTP funding shifted the primary focus of research from another field to toxics." Also, 67% said that TSRTP funding made toxics research a more important overall component of their laboratory's activities. Comments to the survey repeatedly included statements such as, "TSRTP funding moved us into a new field. It was an important source of student support that facilitated initial studies to garner external support." Another said, "TSRTP funding allowed me to develop new projects applying ecological ideas to problems involving pollutant impacts. It provided seed money and a setting that allowed me to learn about toxicology and environmental chemistry." Several others gave examples of how the TSRTP "encouraged me to pursue projects that I otherwise may not have." The survey results showed that the funding allowed 70% of the faculty respondents to increase their ability to recruit students to their program, and for 69% it created new sources of extramural funding. As a result of TSRTP funding 77% of faculty said that it allowed them to initiate a new research project. For example, one faculty replied that the TSRTP "allowed me and my research groups to undertake significant work that has been widely cited in municipal solid and hazardous waste management." Another said that their research "led to greatly increased visibility in the regulatory community and affected industries." Finally, TSRTP involvement helped 23% of faculty to develop a new course.

Our survey provides several measures that help assess the degree of technical expertise the program has helped foster. The strongest measure available from our survey of the economic impact of the TSRTP is the extent to which trainees have secured further research and development grants or contracts. Survey respondents reported gaining total grants and contract funding of $100.4 million (Table 2). Half of all the former trainees reported receiving grants or contracts, with 43 respondents (19%) receiving over a half million dollars each. Twelve graduates received more than $2 million, and seven (3%) reported generating over $3 million. Academics are more likely to have received grants and contracts than those currently in the private sector or government. Almost two-thirds of those currently in academia have secured grants and contracts, with nearly half of current academics reporting having received between $100,000 and $2 million. In contrast to the academics, only about one-third of the program graduates currently in either the private sector or government reported having received grants and contracts. However, trainees currently in the private sector reported great success in receiving large grants and contracts, with six of them receiving grants in excess of $3 million. At the time of the follow-up survey during the summer of 2000, trainees we contacted had added another $30 million in grants since the first survey.

Faculty at research universities are always in the business of obtaining grants, and participants in the TSRTP program are no exception. However, the faculty who obtained seed money from TSRTP accumulated a total of $316 million in grants in the toxics field, grants that were related to the initial investment of seed money from the TSRTP. Moreover, the faculty competed for and won three national Collaborative Centers in toxics, bringing $182.7 million to the state through competitive applications. In short, the relatively small amount of state funding for the program leveraged and focused a much greater dollar value of outside grants in toxics. Several faculty said that they used the TSRTP funding as nonfederal matches to qualify for programs that provided large grants. The key benefit claimed here is that the state funding led to new grants that would not have come to the state *in the toxics field*, though other grant money would likely have been won by the faculty. The focused state funding led to a rapid multiplication of funds in the emerging area with economic development implications, a concentration that would have emerged much slower or not at all without this targeted investment.

TABLE 1

Impact of the TSRTP on the Subsequent Development of Respondent's Career

| | Students Percent (number) | Faculty Percent (number) |
|---|---|---|
| Turning point | 11.8 (29) | 4.2 (6) |
| Significant impact | 52.0 (128) | 55.2 (79) |
| Limited impact | 26.4 (65) | 35.0 (50) |
| No impact | 6.9 (17) | 5.6 (8) |
| Total | (239) | (143) |

Research benefits economic development from publications that result from grants. The former trainees were asked to indicate how many articles they published in the open literature or in limited distribution technical reports. Over 76% of the respondents had published in the open literature, and 44% had published technical reports (Table 2). Overall, the respondents reported publishing a total of 3,674 articles, but this includes a variety of types of publications in addition to journal articles. As might be expected, those who are currently employed in academia have published in the open literature at a higher rate (83%, compared to 79% for those in government and 67% for those in the private sector). The academics averaged 11.4 articles each, compared to 6.1 articles for those in private businesses. In a similar fashion, those currently in government or the private sector are more likely to have published technical reports (62% in government, 49% in private industry, and 34% in academia). While this overall pattern is not surprising, it is worth noting that former trainees have contributed to the development of knowledge in the field through both types of publications in significant numbers, no matter what their current employment.

The total state economic impact from intellectual contributions is impossible to assign a dollar figure, because a scientific discovery or a publication may have only long-term value in combination with other discoveries. For example, Senker, Faulkner, and Velho (1998, p. 119) note that "company researchers obtain knowledge from academia mostly by a combination of reading the research literature and interacting with personal contacts, and occasionally by directly recruiting academic experts."

Three examples of such research projects, currently at various stages of development, can illustrate the current and potential economic benefits of TSRTP-funded research. In 1985–1988, TSRTP funded a theoretical and bench scale study at UC Berkeley of the use of steam injection to recover solvents from contaminated soil and shallow aquifers. This methodology has matured to the stage of full-scale field demonstrations (in cooperation with Lawrence Livermore National Laboratory) and a start-up company to market this novel technology. More recently, a laboratory scale project at UCLA investigated the use of plasma technology to replace the need for solvents as cleaning agents in the semiconductor industry. This method is now being commercialized with the collaboration of two of the National Laboratories. The third project was an ambitious multidisciplinary effort to remediate a highly contaminated wetlands site at Mare Island Shipyard, a deactivated naval base on San Francisco Bay's northern edge. This project included investigators from six of the nine UC campuses. It was highly successful and has served as a model for other former military base clean-up actions in California (several of which are now being performed by former employees of Mare Island Shipyard who apply this technology and expertise as civilians trained by the UC research teams). In these three cases the expanded knowledge base led to a variety of economically beneficial outcomes that were not foreseen when the research was initiated.

### 2. *Benefits from Employment in the New Toxics Field*

The TSRTP helped stimulate economic development by providing recognizable credentials for employment in various areas of expertise in toxicology and environmental engineering as these fields emerged in economic importance. For many TSRTP trainees, their participation in the program provided background, networks, references, and experience as an entrée into the rapidly changing environmental technology industry. For another group, this pathway has lead to specialization in toxics issues in the growing biotechnology industry. In both fields, trainees have not only been able to contribute by their own work, but many have helped create additional jobs in these areas. Evaluation of the job creation activities and employment history of trainees provides a central measure of the program's economic impact.

Because of the extent to which government regulation has been central to the development of the industry, the environmental toxics field is an interesting example of an emerging industry that evolves in response to government agendas. While many technologically important industries have been dependent on government funding for their early development (e.g., aerospace and electronics being nurtured by defense funding), government regulation more than funding has played the key role in the creation and development of the toxics industry. For this reason, government agencies must be considered to be part of the overall toxics industry in addition to private sector firms and academic research. TSRTP itself was established as a result of the state government's recognition that toxic substances posed an important problem for the continued economic development and environmental integrity of the state. The program's origin reflected the realization that toxic substances posed a wide variety of complex problems that could not be solved by a few technical fixes, but instead required a strong base of professionals trained to understand and solve these problems.

As shown in Table 3, former TSRTP trainees currently work in academia (46%), private industry (36%), and the public sector (15%). The strong presence in academia is not surprising, since most of the trainees were in doctoral or postdoctoral programs, which are the primary training grounds for academic careers. However, even more impressive is the fact that about half of these students receiving academia's highest degrees did not follow an academic career but went to work in firms or governmental agencies needing their specialized training at the doctoral level. The presence of a significant block of former trainees in government positions is a reflection of the importance of the government agencies and regulatory programs in the development of the environmental technology industry.

An interesting pattern emerges when the respondents' current sector of employment is broken down by when the respondents were funded (Table 3). Those in the earliest cohort (last funded in 1989 or earlier) are more likely to be employed in the private sector than those funded most recently (last funded in 1994 or 1995). Part of the pattern is likely to result from changes in the environmental technology industry over time. The 1980s were a period of rapid expansion of this industry, especially for companies dealing with hazardous waste and materials. This expansion may have attracted many of the early trainees into the private sector. The early 1990s saw a consolidation of the environmental technology industry and a national recession, which may have kept trainees from that era from entering the private sector. We suspect that the small proportion of the most recent trainees who report themselves to be in the private sector may represent a slow transition for the trainees from their academic experience into private-sector careers.

TABLE 2

Contributions of Trainees to Knowledge in Toxic Substances

| | All Grants and Contracts | | Publications in Open Literature | | Published Technical Reports | |
|---|---|---|---|---|---|---|
| | Recipients of grants or contracts (percent) | Total grants and contracts reported ($million) | Number who published (% of respondents) | Number of articles (average # for all respondents | Number who published (% of respondents | Number of articles (average # for all respondents) |
| Total ($n = 246$) | 51.6% | $100.4 | 184 (76%) | 2,258 (9.5) | 106 (44%) | 1,416 (5.9) |
| Current academics ($n = 101$) | 62.7% | 42.1 | 82 (83%) | 1,160 (11.4) | 35 (34%) | 227 (2.2) |
| Current private sector ($n = 81$) | 41.5% | 42.9 | 53 (67%) | 496 (6.1) | 40 (49%) | 845 (10.4) |
| Current government ($n = 34$) | 35.3% | 7.1 | 27 (79%) | 200 (5.9) | 21 (62%) | 248 (7.3) |
| Other ($n = 27$) | 51.8% | 1.9 | | | | |

*18 respondents reported that they received grants and contracts, but did not report a total dollar amount. These respondents are included in the number of recipients, but no attempt was made to estimate the amount of grants and contracts they received.

The trainees moving out into the world of work are quite mobile from job to job. Many former trainees have worked in several sectors—academia, government, and the private sector. The 246 respondents report having worked in 1.6 sectors on average. Other data on the number of positions held indicates that respondents, who are still early in their careers, have held 2.3 positions on average. These data are probably typical of highly trained people working in cutting edge parts of the new economy.

Two-thirds of our former trainees (68%) have remained in California, with the remainder in other states (23%) or abroad (9%). Most of the economic impact reported in this survey is therefore likely to have remained in California, though this is declining over time. The international presence of former trainees suggests that the program has also had an impact in regions throughout the world. For example, one former trainee[2] reported that she started a nonprofit company conducting environmental assessments in the former Soviet Union, where she is helping improve public health and the environment. Some economic benefit from these students working in other countries may return to the United States and to California though the expansion of export markets for environmental goods and services.

Almost half of the former trainees reported that they helped to expand employment, create new divisions that employed people, or started a company (Table 4). Former trainees in academia and government also contributed to the expansion of employment. The rates at which respondents reported expanding employment and creating new divisions were very similar regardless of the respondent's current sector of employment. Information collected in the survey only allows a rough estimate of the number of jobs created. The trainees were asked to describe their job creation activities and they included the following.

- A vice president of an engineering consulting firm reported that the office he manages grew from 15 to 25 people over a two-year period.
- Another started an air quality services department for an existing environmental consulting firm, resulting in the hiring of 5 new environmental professionals.
- One former trainee now working at an internationally known research and consulting firm expanded its pharmaceutics and metabolism program from three to ten individuals.
- Another former trainee reported being the fourth person hired at a new company in 1990; the company reached a peak of 17 employees based in large part on the R&D from the University program.

- A faculty member who had been a trainee reported starting a company that hired over 20 full time employees (many of them previous trainees).

Start-up businesses are a major economic impact. Nineteen respondents reported that their work had resulted in founding a startup company. At the time of the follow-up survey, an additional 4 businesses were started, for a total of 23 new businesses coming from TSRTP graduates. Since only 110 survey respondents reported having ever worked in the private sector, this means that more than one out of five former trainees who entered the private sector helped start a new business. However, only three faculty (2%) have been involved in start up businesses, though their students and research results have led to more startups. Faculty have more often worked as consultants to government and industry. Of the faculty respondents, 39% reported consulting *as a result of TSRTP funded research.* Of these, the largest number consulted for government agencies (32% of respondents), while 19% consulted for a private company (many of whom also consulted for a government agency). Former TSRTP trainees have not only found their own way into an emerging field, they have helped expand the network of businesses working in the emerging industry.

While we lack the exact number of new jobs that were created by TSRTP graduates, we can estimate that conservatively at least 200 jobs were the result of efforts by previous trainees. Of course, job expansions in businesses are only remotely linked to academic training, and we do not claim that the academic program alone led to employment expansion. What we do claim is that job growth is an indication of how trained students become leaders in their companies leading to job expansion in the toxics field, which is what the state wanted to have happen when it

TABLE 3

Current Employment Sectors of Former Trainees by Year Last Funded

| | Percent of Respondents (Number) Currently in Sector | | | |
|---|---|---|---|---|
| | Last funded 1987 to 1989 | Last funded 1990 to 1993 | Last funded 1994 to 1995 | Total |
| Academic | 33% (29) | 47% (42) | 70% (28) | 46% (102) |
| Private Sector | 47% (41) | 37% (33) | 13% (5) | 36% (81) |
| Government | 16% (14) | 14% (13) | 15% (6) | 15% (34) |
| Other Sectors* | 5% (4) | 2% (2) | 3% (1) | 3% (7) |

* Other sectors include non-profit organizations, research laboratories, and foreign sectors.

initiated the TSRTP. Programs such as TSRTP pay off for the state because regardless of the sector in which students found employment, about half of them said that they were in positions where they contributed to job expansion. Although many who contributed to job expansion failed to describe the specific number of jobs they helped create, nine respondents who gave a count accounted for a total of 99 new jobs, or an average of 11 each. A total of 86 other individuals reported that their work resulted in expanded employment, but we could not determine how many; we assumed a total of one each to be conservative, leading to the conservative estimate that the trainees created a total of at least several hundred jobs in the toxics field. Interestingly, two years later the 115 follow-up respondents reported an additional 43 jobs created.

In sum, the academic program did what it is supposed to do, which is to train students who will become employed and become leaders in their field, resulting in expanding employment. Case studies and the limited quantitative data we collected confirm that in the toxics field this employment growth was a very positive side benefit of the program as it involved no additional effort or economic development incentive from the university.

### *3. Benefits from Technological Applications and Product Innovation*

Research and training programs also contribute to the economy through the development and dissemination of new technology leading to marketable products. While technology transfer was an indirect focus of TSRTP, research activities the program has funded have led to the development and deployment of new technology, new industrial processes, and new management approaches. Applications for patents and the development of new technology and processes are two ways to evaluate these impacts.

Product outcome from TSRTP trainee research has included several novel pollution prevention and cleanup approaches that have been commercialized and are being used by industry in California and elsewhere. For example, program graduates have made technological advances in air pollution and wastewater treatment, including innovative biological air pollution control technologies, the filtration and solidification of radio-nuclides from nuclear reactor cooling water, and the biological treatment of textile wastewater. While we cannot place a dollar value on these contributions, the linkage to the research done by TSRTP participants is well established. Moreover, the long-term benefit is certain to increase, because the program's graduates are still early in their careers—those most advanced in their careers were postdoctoral researchers in 1985–86, and the typical former trainee is roughly five years out of graduate school.

Thirty-four former trainees reported having applied for 106 patents, with the survey respondents reporting that 42 patents have been awarded. Patents are a very important measure of the technological innovation process, and the fact that the graduates of the TSRTP who responded to the questionnaire applied for over 100 patents is indicative of a program with significant future potential. At the time of the follow-up, an additional 14 applications had been made, and several more patents had been received by the trainee cohort. The faculty responding to the survey obtained another 7 patents.

The trainees were also asked whether they had either expanded or improved an existing technology or created a new product or service. These data are reported in Table 5. Almost half of the respondents (considering overlap) reported having improved or created a new technology. Respondents described advances in a wide range of areas, including:

- contaminated site assessment and cleanup, including the development and commercialization of new test kits for environmental contaminants, and the use of microalgae for reducing selenium toxicity in the ecosystem;
- basic genetic research that may lead to bio-engineered bacteria for toxic metal remediation, processes for assessing individual susceptibility to environmental contaminant exposures, and new technologies for cleanup of contaminated groundwater;
- industrial process improvements, including bio-conversion processes for the production of fine chemicals, improved computer-aided chemical process control technology, and increased process efficiency and throughput for advanced ceramics manufacturing;

TABLE 4

Expansion of Employment by Former Trainees

| | Percent of Former Trainees Whose Work Resulted in: | | | |
|---|---|---|---|---|
| | Expanded Employment | New Division or Department | Startup Company | None of These |
| Total ($n = 246$) | 38.5% | 18.4% | 7.8% | 52.7% |
| Private sector ($n = 81$) | 43.2% | 17.3% | 11.1% | 49.4% |
| Academia ($n = 99$) | 38.0% | 15.8% | 4.0% | 55.4% |
| Government ($n = 32$)* | 38.2% | 23.5% | 0% | 52.96% |
| Other ($n = 29$) | 27.6% | 24.1% | 20.7% | 51.7% |

NOTE: Totals do not add to 100% due to multiple responses.

- medical advances, including the development of new drugs and drug-development compounds (including at least one that has received FDA approval) technology to evaluate the clinical treatment of metal poisoning, and development of public health intervention plans in Chicago and elsewhere; and
- high technology advances, including improvements in the reliability of computer hard disks, improvements in materials and processes in the aerospace industry, and the development of organic photoreceptors for copy machines.

These examples illustrate the new technologies and processes that emerged from the program and how it can create large impacts on the regional economy, because emerging technologies are essential for the long-term competitiveness of the state's industry. Table 5 further illustrates the range of technological contributions due to the work of the former trainees. Improved technologies are the most common contribution, as indicated by about 42% of the respondents, but it is significant that an astonishing 19% of the respondents contributed a new product. The data show that just under a quarter of the TSRTP graduates in the private sector created a new product, while less than half this proportion in academia or government did so.

Many former trainees reported that they had helped develop new pollution prevention processes (41.5% of respondents). Within this category the respondents were split between those reporting the development of end-of-the-pipe mitigation processes and pollution prevention processes. Toxic cleanup technologies or processes were developed by 32 respondents (13%).

If innovation in improved technology is the goal of university contributions to an emerging industrial field, these data suggest that program graduates are substantial contributors regardless of the sector in which they work.

TABLE 5
Technological Contributions by Former Trainees

| | Percent of Former Trainees Whose Work Resulted in: | | | |
|---|---|---|---|---|
| | Improved Technology | New Product | Pollution Prevention or Mitigation Processes | Toxic Clean-up |
| Total ($n = 246$) | 41.6% | 18.8% | 41.5% | 13.2% |
| Private sector ($n = 81$) | 45.1% | 24.4% | 35.4% | 13.0% |
| Academia ($n = 99$) | 40.6% | 13.9% | 36.3% | 16.0% |
| Government ($n = 33$) | 29.4% | 11.8% | 64.7% | 5.9% |
| Other ($n = 28$) | 50.0% | 28.6% | 50.0% | 14.3% |

NOTE: Totals do not add to 100% due to multiple responses.

### *Superstars and economic development*

One of the surprising findings of this research was the fact that a disproportionate amount of the economic development impact came from a relatively few persons outweighing modest contributions from many more average performances. We looked carefully at these results and tried to see if this was an error or not. While we could not verify every person's response to the survey, we conducted telephone interviews with selected individuals with the highest achievements to obtain additional details beyond this survey. We are convinced that it reflects the fact that the high achievers are superstars, and they are a legitimate product of the process of graduate education and university research. On further reflection, economic development programs have many instances of highly skewed impact from a relatively few high performers. For example, research on small businesses acknowledges the special role of the "gazelles," which are special fast-growth firms largely responsible for the overwhelming contribution of small businesses to overall employment growth in the US (Birch, 1987). In fact, this is also consistent with a "venture capital" model, based on the fact that in a typical venture capital effort a relatively small number of big winners provide most of the income for the firm to offset nonproductive investments.

In the superstar model, university-industry technology transfer efforts nurture many projects with a wide range of technological inputs, but it remains for a few highly successful ventures to return most of the benefits. Similarly, a few individuals going into academic careers will become most productive, generating a disproportionate amount of the research grants, publications, and discoveries.

Careful examination of the survey data reveals the extent of the superstar's role. Four respondents reported both more than 100 publications and more than $2 million in grants and contracts. These four, representing less than 2% of the respondents, were responsible for almost one-fifth of the publications and almost one-quarter of the grant and contract money reported, consistent with a "superstar" model.

Across the three different types of benefits from the TSRTP, superstars play a significant role in more than one sector. Using selected indicators, we identified the stars in seven different areas: receiving over $2 million in grant money, supervising more than 10 employees, writing more than 50 professional articles, writing more than 60 technical reports, applying for a patent, or creating a startup business. These indicators overlap so that a total of 85 instances are noted for high achievement by only 59 persons. In short, the 59 superstars we identified are often high in more than one area and make a broad contribution not only to academic achievement but to the regional economy.

### *Conclusion: University Basic Research and Graduate Training Has a Positive Economic Development Impact*

Our findings, following the logic outlined by Etzkowitz (1997), suggest that university programs designed to strengthen the university's traditional basic research and education role in strategic areas may be a very productive tool for technology transfer with huge economic development benefits. Science-push economic development that links universities, government, and industry is at the core of both regional revival and the emergence of new industrial policies, even without "industry in the driver's seat." The policies that support knowledge-based economic development, according to Etzkowitz (1997, pp. 421–422), go beyond the question of the immediate number of jobs generated to link new technology to the state's existing or potential industries. The TSRTP shows how this link can be forged. Students in graduate and postdoctoral programs carry the best technology of the university into industry, generating knowledge, expanding employment opportunities, and developing products. Some stay in university positions to discover more knowledge and to train the next generation of students, while others go into government, which sets the regulatory environment in which firms and scientists operate and from which governmental funding originates.

The total benefit, thus, is that the graduates of the university doctoral programs take technology and grant-getting skills into universities, industry, and government where they can build the collaborative institutional network essential for knowledge-based regional economic development (See Kenney & von Berg, 1999). Stimulated by the initial investment by the state of about $15 million of state money, graduates have garnered $130 million in grants, and the faculty received a reported $316 million more. An identified 200 jobs were created by the graduates, along with at least 25 spin-off companies. If jobs create a $50,000 benefit each, following Feller and Anderson, the economic development of just these measured outcomes of the TSRTP is around $450 million, or 30 times the state's investment. In addition, patents and invented processes will result in productivity gains that benefit firms for years to come. We do not claim, however, that the investment increasing 30 times is all due to the TSRTP. These results came from the fact that the TSRTP leveraged a lot of other public and private resources. However, given the extent to which the TSRTP focused research and enabled faculty to train students in an emerging field, we do claim that without the TSRTP only a fraction of the benefits would address the state's desire to expand its capacity in toxics.

As well, this research has extended Etzkowitz's concept of the role of the university for economic development to show how universities can assist in strengthening emerging industrial sectors. Fundamentally, the economic development role of the TSRTP is to help establish a viable environmental technology cluster in California, a geographically concentrated set of companies in the same industry that share infrastructure, suppliers, and distribution networks (Bradshaw, King, & Wahlstrom, 1999; Porter, 1998). The firms starting to make up the environmental technology cluster are in toxic substances monitoring, remediation, waste reduction, and reuse. The specialized linkages between the firms in this emerging industry are supported by university research and programs and are strongly influenced by government regulation, all of which are nurtured by research and especially by graduates of the TSRTP. While it is still too early to demonstrate that the emerging firms constitute a cluster, the range of these firms and their solid support provide what cluster analysts think of as the foundation for cluster development.

The benefits of a highly focused problem-based academic science-push academic program such as TSRTP are very attractive from a state policy perspective as an alternative or supplement to project-based programs. Research and teaching programs tap what universities do best—basic science and its applications. The focus on research and teaching helps faculty and administrators avoid the role conflict and goal ambiguity inherent in mobilizing university researchers to become entrepreneurial or to work within the time-frame, agenda, and financial incentives of businesses (See Campbell & Slaughter, 1999; Press & Washburn, 2000). Also, by contributing to university research through established departments and research programs, research and teaching programs to address public problems help establish a deep capacity linked to the basic research that is at the core of the university mission. Moreover, broader university-industry programs such as the TSRTP contribute multifaceted benefits to the state beyond industry or economic development goals, such as public health, environmental quality, safety, and quality of life. Solution of problems such as toxics requires more than just an academic discipline; it requires a network of researches in many departments, disciplines, and campuses who have a long productive working relation with industry.

Finally, our claim is not that all university-industry programs should be science-push, and we do not think that all social problems can be solved by this model. Using the analytical framework suggested in this article, we can hypothesize that science-push programs may have their greatest benefit when three conditions are right.

- First, science-push programs make sense when there is a core of university expertise that can achieve research benefits by becoming networked and focused around a pressing problem. Much of the technological and research framework was in place to develop multidisciplinary expertise in toxics before the TSRTP began, but it was not focused on the toxics issue. Graduate students were already in programs developing their skills in these fields. By stimulating faculty collaboration and by offering incentives to work on certain problems, the limited state money was able to build a field and obtain significant external funding for centers of expertise. More mature fields might not be expected to demonstrate these benefits. Also, given the pressing public concern about toxics, substantial funding became available.
- Second, due to increasing regulatory pressure there were strong employment opportunities for graduates of the program. They had multiple career paths open to them in industry, academia, as well as the regulatory agencies, and the graduates were readily able to utilize their expertise. Also, the industrial structure allowed both for employment in existing firms and for the creation of new units in larger firms, as well as forming spin-off businesses. However, the lack of established collaborators from industry who could fund project-based research seems not to have limited their need for skilled workers in the toxics field.
- Finally, the industry was ready for many small incremental inventions. The problem was not one of inventing a new automobile engine but of implementing thousands of creative ways to solve largely independent environmental problems. That there were so many opportunities for innovation was readily communicated to both faculty and students, and their awareness of these opportunities created a culture of innovation.

In conclusion, if we are right, these conditions shape the fate of science-push programs. This can not go on without limits, however. What is clear is that the economic development benefits of a science-push program such as the one studied here succeed because of their ability to mobilize and organize existing institutional resources and focus them on a problem that can leverage other resources. Faculty and students now in the Toxics program are not available to other science-push programs that might be proposed in fields where their expertise would be potentially valuable. Students in major research universities have many competing opportunities, and faculty are finding it harder to recruit students for emerging fields, even if they have small amounts of funding. Nonetheless, academic interests are so fluid that opportunities emerge readily, and when the policy and economic context is right, science-push programs such as the TSRTP succeed.

## Notes

[1] Students funded after 1995 were not included in this study, which was conducted in early 1998. We assumed that most of these recent trainees are either still completing their education or are too early in their careers to have had significant impact on the economy or their field. For similar reasons, we also eliminated from the study trainees who reported that they were still in school even though their TSRTP funding ended.

[2] This student was an American citizen.

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# DISCUSSION

## Comment

JE Haithe Anderson

# As If Gender Mattered

## Feminism and Change in Higher Education

> Survival is not an academic skill. . . . It is learning how to take our differences and make them strengths. *For the master's tools will never dismantle the master's house.* They may allow us temporarily to beat him at his own game, but they will never enable us to bring about genuine change.
>
> Audre Lorde
> *Sister Outsider,* 1984

As Stanley Fish (1989) has observed: "When members of an institution debate, it may seem that they are arguing about fundamental principles, but it is more often the case that the truly fundamental principle is the one that makes possible the terms of the disagreement and is therefore not in dispute at all" (p. 163). Uncovering the common ground of our principled disagreements may be especially difficult in academia. We work, more often than not, by establishing our identity against the backdrop of the points of view we find disagreeable. Consider, for example, a recent book edited by Catherine Marshall (1997), *Feminist Critical Policy Analysis: A Perspective from Post-Secondary Education.* In the introductory chapter she and her co-author, Estela Mara Bensimon, situate their work by telling us who they are not. "The premise of this book," as they put it, "is that the theories and

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methods of conventional policy analysis are biased and therefore incapable of understanding the cases of the Heilbrun's, Conley's, and Dalton's and the other thousands of women professors, students and staff as resulting from structures, norms, practices, values and culture that are gendered" (p. 2). The three women referenced in this sentence stand as icons for thousands of women who presumably share their experiences of sexism in higher education, and together this group will oppose a "biased" villain called conventional policy analysis. Feminist critical analysts, who will lead this opposition, "view conventional policy studies methods as the products of disciplinary traditions that are androcentric and therefore reject them as the *master's tools*" (italics in original, p. 6). The lines of dispute in this debate are firmly drawn between a conventional world where "the maintenance of this patriarchal ideology is made possible by coalitions of men in positions of power" (p. 11), and a presumably unbiased, unconventional and desirable world defined by a woman-centered policy analysis. Bensimon and Marshall, in short, posit an academic world that is neatly and fundamentally divided between men and women.

As I will show, there are a number of fundamental principles that feminist critic's share with the villains they reject. By pointing to these similarities, however, I am not accusing feminists of wrongful deeds. My goal, instead, is to situate the work of academic feminism and, in particular, to arrive at a fuller understanding of the principles that give rise to feminist criticism in higher education policy. Adopting what Frank Fischer and John Forester (1993) have called the argumentative turn in policy analysis, I am seeking to understand the practical processes of argumentation in feminist policy analysis. In particular, I am interested in "what policy analysts and planners do, how language and modes of representation both enable and constrain their work, how their practical rhetoric depicts and selects, describes and characterizes, includes and excludes, and more" (p. 2). I feel compelled to point out that the work of academic feminists, like that of their non-feminist counterparts, is bound by conventions, norms, and rules that govern academia not because I'm hostile to feminist criticism, but because I have learned so much from it. Nonetheless, as the unfolding of this essay will reveal, I am more inclined to think that feminists cannot reject the master's tools, and that it is a good thing too. As I will conclude, if the goal is to change the direction of higher education policy, than increasing one's sensitivity to the nuances of the master's tools is the only way to go.

## *I*

*Feminist Critical Policy Analysis* (1997) was written by academic women and published by a mainstream press. What does that tell us about common principles? It suggests, from the onset, that women do have a place in academia, at least for the time being. This does not mean, of course, that gender relations on campuses are unproblematic. We can continue to call them *Unsettling Relations* (1991), as Himani Bannerji and her co-authors have, but they are relations nonetheless. Like all relationships they are tenuous and contingent. As David Noble (1992) has shown, institutions of higher learning have opened and then closed their doors to women, and this has been going on for hundreds of years. We have no reason to assume, therefore, that universities in the distant future will be friendly to women. Indeed, if the recent history of faculty retrenchment in higher education offers us a lesson, it is, as Sheila Slaughter (1993) has shown, that women may be disproportionately represented among those who will be cut from the ranks of the profession. All caveats aside, however, I think that it is fair to assert that the assumptions that guided early university life in the United States have gradually been replaced by ones that are friendlier to women. Moreover, if we examine academic libraries we will find that they are increasingly populated with texts that take gender as their central focus.[1] In short, feminist criticism has engendered fresh insights across the disciplines, and the scope of this particular way of seeing has been widening, not narrowing.

All of which is to say that something has changed. Moreover, without these changes—without newer principles that accept women as academics, if not always on the terms they want, and newer principles that acknowledge that gender matters—a book like Marshall's (1997) would not be publishable. This does not mean, as Dale Spender (1989) has pointed out, that women's writing is always judged in the same way that men's writing is. Nor does it mean that women's writing carries the same social value. Nonetheless, given the number of academic texts that claim feminism as a subject heading, I think it is fair to say that feminist writing, however judged, has secured a place in academe. The change signified by the growth of publications written by and about women has been slow, of course, and feminists are often dismayed by this fact. Bensimon and Marshall, for example, rely on Audre Lorde's (1984) metaphor to repeatedly express their impatience with gradual change. As they passionately assert, to bring about serious change in academia means that "the master's tools must be cast aside" (p. 112). Like Lorde, Bensimon and Marshall assume that using the master's tools "to temporarily beat him at his own game" (p. 112) will never bring about genuine institutional change.

From the point of view adopted here, the juxtaposition offered by Bensimon and Marshall (1997)—between those who use the master's tools and those who eschew them—is confusing. What tools would they have their followers cast aside? They mention the methods of androcentric disciplines, but what makes those disciplines and their methods androcentric? Methods, after all, are nothing more than ways of apprehending the world, and nothing is more powerful for discerning, describing, and defining the world than the vocabularies we adopt. As Bensimon and Marshall themselves suggest, language is powerful, and what disturbs them about its power is that "male dominance of language and meaning has enabled them to construct reality—history, knowledge, and laws—from their vantage point and make it look as if theirs were the view from everywhere" (p. 5). Their alternative, however, of using a feminist vocabulary to redescribe our situations and our past, is nothing more or less than an attempt to assert the power of language from another vantage point. Moreover, to gain the attention of other social scientists Bensimon and Marshall necessarily follow linguistic rules that reveal their mastery of academic ways of making meaning. They review, for example, the assumptions that guide five different feminist theories—liberal feminism, cultural feminism, power and politics feminisms, postpositivist feminisms, and critical theory—and lay out the diverse relationships these theories have to policy analysis. Like other social scientists, Bensimon and Marshall map various theoretical perspectives so that they can show their readers where they stand. As academics they want us to know that they oppose liberal feminism because it offers strategies for change that focus on assimilating women into established structures while leaving androcentric norms, values, and conventions in tact. They advocate, instead, an interventionist strategy aimed at transforming academia. They call their position "feminist critical policy analysis" because it reflects a "combination of power and politics and postpositivist feminism with critical theory" (p. 8).

When Bensimon and Marshall (1997) show their readers the feminist theories they reject, along with those they accept, they are following established academic protocols; not casting them aside. As Lyn Yates (1993) puts it, in an anthology called *Gender Matters in Educational Administration and Policy,* academic practice requires its adherents to "formally attend to other people's arguments" (p. 181). Academics agree to disagree, in other words, and one of the ways we do this is by discussing the theories we find disagreeable. While Bensimon and Marshall are critical toward other feminists, they are unforgiving toward a form of academic practice they call "conventional policy analysis." What makes policy analysis conventional, in their way of thinking, is that it is organized around the idea of value-neutrality. The result in higher education policy is a set of ostensibly gender-neutral norms that, in their application to academic women, are biased. The only way to undo the bias inherent in conventional policy analysis, as Bensimon and Marshall assert, is to use "the tools of critique needed to dismantle the master's house." I am all for challenging androcentric norms—telling ourselves stories about how things might get better is important work—but I would like to point out that Bensimon and Marshall did not invent "the tools of critique." Instead, the tools they urge upon their readers are synonymous with the master's tools, and they were put to productive use long before women entered the academy. Moreover, what constitutes this form of criticism, what makes it recognizably academic, is that it adheres to fundamental principles that guide *how* academics argue.

The fact that Bensimon and Marshall (1997) bring their criticism to bear upon conventional academic practices, but also upon the work of other feminists, offers another clue about the place of feminist critique in higher education. If academic feminism is now characterized by internal conflicts over what it means to do work that is recognizably feminist, then this is a sign of its growth, maturity, and vitality. As Alasdair MacIntyre (1984) once observed, "when an institution—a university, say, . . . is the bearer of a tradition of practice or practices, its common life will be partly, but in a centrally important way, constituted by a continuous argument as to what a university is and ought to be. . . . Traditions, when vital, embody continuities of conflict" (p. 222). Feminism entered the university in opposition to the common life of men's studies but, because it is academic, it has been subject to the continuities of conflict that are definitive of all academic work. Whenever conflict over what constitutes an academic conversation ceases, that particular way of thinking withers away. Judging by contemporary conversations, academic feminism is still firmly in the game. Like other groups of academics, feminists have enunciated the norms and conventions that establish their distinctive boundaries, and these conventions, in turn, identify who is and is not an insider. Often as not, feminists do this by pointing to differences that mark others as outsiders. Bensimon and Marshall, for example, tell us that "there is a misperception among those who are not knowledgeable of feminist theories that any work that focuses on women or issues that concern women is feminist" (p. 8). What counts as feminist work in higher education? As they put it, "If the study's data were analyzed in connection to historically-embedded policy assumptions that structure universities around males, with a critique of assumptions of current policies and programs, and presented an activist/advocacy stance for remaking institutional practices to be responsive to women, then it *would* be feminist critical analysis" (italics in original, p. 9).

While Bensimon and Marshall (1997) like to think that their acts of criticism are dismantling the master's house, to the pragmatist it looks like business as usual. As Richard Rorty (1989) says, pragmatists do not treat people "as anonymous channels for truth but as abbreviations for a certain final vocabulary and for the sorts of beliefs and desires typical of its users" (pp. 79–80). The work of academics, in part, is to try on different vocabularies, redescribe events from the perspectives they offer, and compare the results with those generated by alternative vocabularies. Academic feminists have introduced new vocabularies, and the redescriptions these vocabularies enable have been very productive. Bensimon and Marshall are trying to redefine the world of higher education policy by applying a feminist vocabulary, which they hope will make things better. Ironically, the challenges they offer would not make sense to other members of the profession—indeed, could not even be heard—if Bensimon and Marshall had not mastered some of the academic protocols handed down to them by men. The inescapable fact, the truly fundamental principle that underlies academic work, is that to become a member of academia, is to be socialized into a community defined by rules that determine who is, and is not, a member in good standing. Membership rules are never fully secured, of course; instead they are historical and contextual and must, as a consequence, be continually worked for. Nonetheless rules of membership, however much they shift to accommodate new ways of thinking and being, are still rules. The dilemma that Lorde eloquently points to, despite her desire for a revolution (or perhaps because her desire is so strong), is that it is impossible to challenge membership rules without already being an insider of one sort or another. In *Women of Academe: Outsiders in the Sacred Grove,* Nadya Aisenberg and Mona Harrington (1988) characterized academic women as being "outsiders." As "women of academe," however, they are also insiders. Academic feminists in higher education are insiders of a particular *kind*, to be sure. They have used, and will no doubt continue to use, the uniqueness of their insights to challenge the rules that govern academia at large. I am sympathetic with their agenda for change, but I do wish to point out that the alternatives that feminists offer, like those offered by other groups of academics, are defined by rules of inclusion and exclusion that, in turn, point to their own specialized biases. As Bensimon and Marshall make plain, it takes more than womanhood to put one inside the circle of academic feminists.

## *II*

The very fact that women have joined the academic community simultaneously establishes the malleability of the rules while pointing to the need to review and critique established policies. This is the point of feminist criticism in higher education policy, and the point deserves the sustained attention that Marshall (1997) and others have given it. The point of my effort, however, is to examine the modes of representation used in feminist criticism of higher education policy. To further situate this kind of work I want to think, albeit briefly, about the area of study called policy analysis. As Judith I. Gill and Laura Saunders (1992) point out, early proponents of policy analysis in academia had a difficult time convincing their colleagues that policy analysis deserved academic status. As they put it, "Policy analysis does not conform to the traditional rules for good scholarly research. Unlike other kinds of academic research, where problems are identified by disciplinary concerns, policy analysis is driven by problems identified by policy makers whose concerns lay in the realm of politics" (p. 5). The underlying logic of policy research, therefore, resonates with that of feminism—at least wherever feminist research claims to be driven by the problems experienced by women. Policy analysis, in other words, has had to struggle for recognition and legitimacy in much the same way that academic feminism has. It seems fair to assert, on the other hand, that most forms of policy analysis are already shaped by disciplinary concerns. Gill and Saunders, as the title of their book makes plain, are interested in *Developing Effective Policy Analysis in Higher Education,* and so is Marshall. Higher education, in short, is the disciplinary orientation that shapes their interest in policy analysis.

If policy analysts have had to endure the condescension of other academics, feminists have had to argue for the interests of a constituency that is all but invisible to relevant policy circles. As Marshall (1997) puts it in her preface, "Policy researchers and analysts have gained and retained legitimacy by focusing on the problems and methods identified by powerful people. Those with a different focus are silenced, declared irrelevant, postponed, coopted, put on the back burner, assigned responsibilities with no training, budget, personnel or time, or otherwise ignored" (p. ix). Her goal is to show how and why it is important "to expand policy questions and policy analysis methods to incorporate critical and feminist lenses" (p. ix). In particular she hopes to demonstrate, "the promise of politics, analyses and policymaking that thoughtfully and thoroughly works to uncover any source of oppression, domination or marginalization and to create policies to meet the lived realities, needs, aspirations and values of women and girls and others kept on the margin" (p. ix). Whichever lived realities higher education policymakers respond to, they will always be reacting to a multiplicity of interests. The role of the policy analyst, in turn, is to conduct research to help *managers* make decisions about how to organize, regulate, and police the internal order of an institution defined, in part, by genuine conflicts of interest. The result, to use Marshall's words, is a set of "authoritative agreements among powerful people about how things should be" (p. ix). The goal of feminist policy analysis, as I understand it, is to assert the need for a new kind of academic polity, defined by new standards of argument that will lead to a different set of agreements. Any set of agreements, however, will always exist as an axis around which opposing interests will continue to revolve. As a consequence, policy, no matter how polite as it attempts to be, will always be a source of oppression for those who find its authoritative statements disagreeable.

If higher education policies can be defined, in part, by their attempt to conciliate genuinely conflicting interests, policy analysis can be defined by reference to the continuities of methodological conflict that it embodies. While most would agree with the broad definition offered by Gill and Saunder's (1992)—that policy analysis offers "a method for structuring information and providing opportunities for the development of alternative choices for the policymaker" (p. 6)—there is disagreement on all of the particulars. As their literature review suggests, some think that policy analysis is a rational and linear process; others argue that it is an intuitive, messy, and inherently creative process. Since the 1980s the theoretical base of policy analysis has increasingly shifted to accommodate non-foundationalist (or what others have called poststructuralist, or postmodern) ways of thinking. Anthropologists who advocate this perspective, for example, have suggested that policies can be read "as cultural texts, as classificatory devices with various meanings, as narratives that serve to justify or condemn the present, or as rhetorical devices . . . that function to empower some people and silence others" (Shore & Wright, 1997, p. 7). This interpretative approach to policy criticism has spread across the disciplines, and at its center is the assumption that the policy language we adopt is constitutive, at least in part, of the institutional spaces we inhabit. Placing language at the center of policy analysis has raised a number of different kinds of questions for our consideration. First, as Fischer and Forester (1993) suggest, this view helps us appreciate the fact that "problem solution depends on the prior work of problem construction and reconstruction, and this work is deeply rhetorical and interpretative" (p. 5). The task of a criticism, therefore, is to ask how a given construction of the problem opens and closes policy alternatives. Second, a focus on argumentation requires us to "ask not only what an analysis claims but what it does, to whom, in what language and style, invoking what loyalties, and appealing to what threat and dangers" (p. 5). Finally, this focus enables us to "see more clearly that 'problems' can be represented in many languages, discourses, and frames," and to ask, therefore, questions about "the link between the language of the analysts' arguments and the language of the political setting in which they work" (p. 6).

Whether one agrees with the interpretative approach to policy analysis or not, I think it is fair to assert that policy analysts also start with some common assumptions. Their general goal, for example, is to *persuade* politicians— those who have the power to determine what policy objectives will be followed. Most would agree, moreover, that understanding the environment is central to the task of analysis. When Bensimon and Marshall (1997) claim that conventional policy analysis is ahistorical and acontextual, therefore, they are simply mistaken. In a frequently cited article entitled "The Science of Muddling Through" (1959) Charles E. Lindblom asserted the importance of being sensitive to both history and context. That was in 1959, and the point has been made repeatedly since. For Lindblom the choice was between two methods. "They could be characterized as the branch method and root method, the former continually building out from the current situation, step-by-step and by small degrees; the latter starting from the fundamentals anew each time, building on the past only as experience is embodied in a theory, and always prepared to start completely from the ground up" (p. 81). As Lindblom suggested, either one pays attention to history and context, or one must start anew each time. Gill and Saunders (1992) have carried some of Lindblom's ideas forward. As they recommend, "Policy analysis in higher education requires an understanding of the issues, but, equally important, it requires an understanding of the higher education environment, including interrelationships of forces and structures within the environment" (p. 15). If conventional policy analysis has a problem with history and context, as Bensimon and Marshall suggest, perhaps it is because it has been too wedded to a past where gender did not matter.

As Gill and Saunders (1992) also suggest, taking account of the environment is only part of the task of policy analysis. "The primary components of policy analysis are the policy issue, the environment, the factors affecting policy implementation and the proposed alternatives or recommendations" (p. 22). Considerations of gender may enter in on all of these levels of analysis, but they do not necessarily enter into all levels at all times. When a university wants to diversify its faculty by adding women, for example, gender figures preeminently as *the* policy issue. Moreover, since most universities are heterosocial environments, research on environmental conditions affecting policy decisions that may differentially impact men and women should be conducted as if gender mattered. The degree to which gender matters as an environmental condition, on the other hand, will depend upon the policy issue being explored. Finally, the involvement of academic feminists can, and arguably should, be solicited whenever policy alternatives are being debated. Indeed, as Gill and Saunders suggest, "Unlike an objective fact-finding panel, the policy analyst wants advisers who have vested interests or even biases in the policy area" (p. 17). As this quote reveals, they also reject the older models of policy analysis and, in particular, they reject the idea that policy analysis can be disinterested or value-neutral. They favor, instead, a model that is responsive to the complex realities of institutional life. Acknowledging this complexity requires policy analysts to interview academics who specialize in gender, race and ethnic relations, social class, and sexual orientation. Simply put, responsive policy analysis requires analysts to seek out differences of opinion.

Bensimon and Marshall's (1997) complaint, if reinterpreted within the narrower set of distinctions offered by Gill and Saunders (1992), is that when policy analysts study environmental factors in higher education they rarely take account of women's differences. Their underlying assumption is that difference matters and, if we pay attention to the way they construct the problem of difference, it is clear that differences in academia matter more than the shared ground of our similarities. Bensimon and Marshall suggest, for example, that "in the arena of policy analysis . . . unifying labels such as faculty, student, socialization, tenure, etc. would have to be redefined on the basis of particular subjectivities such as women faculty, black women administrators, Latina students, etc. Feminist policy analysis shows that the practice of universalizing concepts, as is customary in conventional policy analysis, defeats the intended purposes of affirmative action and equal access" (p. 12). Their way of representing differences between women, however, logically leads to the unfolding of finer and finer distinctions. To follow the trail of their logic, therefore, is to undo all unified categories along with the hope for affirmative action on behalf of a specified social group. Academic feminists across the disciplines have been wrestling with this theoretical dilemma for the last couple of decades. What is at stake, in part, is the meaning of equality. Does the regulative ideal of equality require us to treat all people in the same way? Or, does equality require us to treat people according to their differences? If the latter, how can one justify making a claim for social justice on behalf of a unified group called women? Can we make a claim on behalf of all women, given the wide range of differences between women? If we do not claim the common ground of womanhood, how can we make an affirmative action claim on behalf of a group called women?[2]

Bensimon and Marshall's (1997) answer is to redefine womanhood by splitting it apart into a multitude of subjectivities. To offer their alternative of a "women-centered policy analysis," however, they necessarily place all women into the kind of universal category they claim to disdain. Even if one accepts the strategic value of placing women into a unified group and calling for a version of equality based on their shared similarities, one is left with the problem inherent in all binary inversions. Having a women-centered policy analysis does not undo the logic of hierarchy based on gender difference; it simply inverts the logic of this hierarchy and reinvents it. I am not convinced, therefore, that life inside the academy will be improved by the strategies they recommend. That is, I am not convinced that splitting womanhood (or any other social category) into the multitude of her differences will improve higher education policy. Such a strategy will quickly lead one to realize that within groups differences are greater than those between groups, and this, in turn, would be grounds for dismissing gender as a point of analysis. In addition, a women-centered policy analysis is clearly inadequate to the task unless the goal is to completely invert the old logic of the academic hierarchy and exclude men. Bensimon and Marshall, of course, do not literally advocate these kinds of outcomes. It is the way they present their argument—the way their language constructs the policy alternatives they recommend—that suggests these possibilities.

To apply the vocabulary associated with the argumentative framework of policy analysis, I could restate this point by saying that Bensimon and Marshall's (1997) rhetorical strategies are not productive of the changes they desire. While they are invested in undoing some "universalizing concepts," their analysis depends upon dividing the academic world into fundamental oppositions between men and women. The problem with a women-centered policy analysis is that it reifies, naturalizes, and universalizes the categorical distinctions we infer from biological differences. What are needed are higher education policies that are gender-sensitive—policies that raise questions about gender in appropriate contexts—not women-centered policies. This does not mean, however, that feminist policy analysts should give up the idea of difference—the idea of difference is what drives the work of academic feminism, and it has produced a number of useful insights about the position of women in academia. There is nothing self-evident about difference, however. What is at issue, instead, is how we construct meaning around the idea of gender difference. A rhetoric that asserts a woman-centered version of policy analysis for a male-centered one, I am suggesting, reinforces either/or thinking about men and women. To insist on gender as a category of analysis, on the other hand, avoids subsuming women into the generalized category of professor, staff, or student and thereby averts the dilemma of thinking that academic men and women are the same. More importantly, it allows us to pay attention to the operation of gender differences—to how feminine and masculine identities are socially constructed through the policies and practices of higher education.

Consider, for example, what Judith Glazer (1997) says in the chapter she contributed to Marshall's anthology. "Rather than assert that women are more likely to work part-time than to earn tenure-track appointments, to teach more and publish less, to obtain their doctorates in the humanities rather than the hard sciences, to remain single or childless, to leave rather than remain at the university, to be assistant and associate administrators rather than in leadership positions, it would be appropriate to determine what it is about institutional structures that make them more compatible with men's work" (p. 70). She is pointing to gender differences that she claims are structural and suggests that the alternative is "to create female-friendly university systems" (p. 70). While the issue raised by Glazer—that institutional structure matters—is a very important one, her portrayal of academic life assumes that university systems are always already male-friendly. Like Bensimon and Marshall (1997), she constructs her policy problem by positing institutional norms that benefit all men equally, while systematically accumulating disadvantage to all women. This kind of distinction is precisely what needs to be examined. To maintain that masculinity predisposes all men to occupy the most prestigious and/or privileged niches in academia is to simplify and naturalize very complex institutional processes. This, in turn, works to obscure the differences that have characterized men's occupational history in higher education. The problem with this mode of representation in feminist analysis of higher education policy—wherein images of monolithic masculinity form the backdrop against which differentiated femininity figures—is that it reifies categorical differences between women and men. In other words, although feminists interested in higher education policy have been increasingly eager to acknowledge different versions of femininity, their analysis relies on a naturalized and unified version of masculinity.

## *III*

To formulate policy in higher education as if gender matters is to pay attention to the play of difference. To pay attention to gender difference on the terms offered here is to continually question how these differences are constructed—to openly acknowledge the contingent nature of gender differences and to work against the tendency to construct policy problems in oppositional terms that simplify and polarize the academic community. The issues raised by feminist policy analysts—salary equity, hiring women faculty, changing socialization and promotion practices, appointing women to administrative positions, and designing policies that are responsive to women's roles outside of academe—are all vital and important. Shifts in these areas of higher education policy, however, will reshape the entire community, and policy problems need to be formulated and analyzed in ways that reflect this universal impact. The arguments put forward by feminist policy analysts, therefore, would be better served by a vocabulary that promotes images of an academic world where women are working to improve the conditions of a practice they share with men. Using a vocabulary that constructs images of an academic world where established policies benefit all men and disadvantage all women is rhetorically unproductive because it over-simplifies our situation. Moreover, to be persuasive, feminist criticism of higher education policy needs to offer solutions that appear to represent improvements for both women and men. The reason for this is twofold. On the one hand, while academia continues to house overt and covert forms of sexism, it is, nonetheless, home to men who are sympathetic to the changes that feminists want. On the other hand, men and women who are not sympathetic to feminism will not be persuaded by images that suggest they are among/or subject to the "coalitions of men in positions of power" that Bensimon and Marshall (1997) visualize. If the goal is to appeal to a wider audience, and I think that it must be, then feminist policy analysis needs to abandon these kinds of representations. What is needed, instead, are representations that are generous toward their sympathizers and friendly enough to attract and hold the attention of those who are already predisposed to turn the other way when the word feminism enters a conversation.

Feminist policy analysts in higher education, on the other hand, may find it difficult to adopt rhetorical strategies that are friendlier to men. Adopting a vocabulary that softens gender differences might take the political edge off their work—an edge that ensures that their work is recognizably feminist. The work of academic feminists, like the work of other academics, is governed by a set of conventions, and for many years those conventions have obligated feminists to posit a world fundamentally divided between men and women. When Bensimon and Marshall (1997) divide academia into feminine and masculine camps, therefore, they are following rules that establish their mastery of a feminist vocabulary. My recommendations may, as a consequence, fall outside the range of intelligibility shared by the interpretative community they inhabit. While I am sympathetic to kinds of changes that Bensimon, Marshall, and other feminists desire, I am not convinced that forms of persuasion they rely on are productive of the policy changes they want. Calling for a "women-centered" analysis will most certainly appeal to policymakers who have already converted to the assumptions of feminism. My fear, however, is that such appeals are unlikely to reach others. To assure that gender is on the policy agenda, therefore, I recommend that we adopt a vocabulary that relies less on an us-versus-them rhetoric and embraces instead forms of persuasion that reach out across our shared similarities. Appealing to academics from the ground of their commonalties, ironically, would mean adopting some of the rhetorical strategies used by liberal feminists whose pleas for equality went forward in the name of human sameness. Acknowledging our similarities does not mean, however, that we have to abandon the idea of difference. Relying on images of our common ground in academia is a strategic move and it can be bent in the direction of finding new ways to think about gender differences—ways that assert themselves without reversing old hierarchies and without re-naturalizing the idea that women and men are fundamentally different.

The possibilities that I am envisioning are not easy ones, but one could begin by acknowledging that academic feminists are, to play on the title of Lorde's (1984) book, *Sister Insiders.* As insiders, they have had to learn, as Lorde suggests, how to take their differences and make them their strengths. Their calls for change, however, necessarily reflects their command of the "master's tools"—their command, that is, of how to wield specialized vocabularies in academic ways. The linguistic rules that govern academic discourse may change, of course, but they will always point to the shared ground of our commonalties—the commonalties that, as Fish (1989) says, enable our disagreements. Academic vocabularies and the way we use them, as academic feminism itself demonstrates, have always been defined collectively by the people who happen to occupy academia at a given point in time. The more diverse the academic community, the more diverse our vocabularies. These vocabularies are, nonetheless, grounded in common conventions, and however much those conventions have shifted over time, they have always operated as tools of exclusion. The exclusivity of the master's tools is what enables us to draw distinctions between masters and apprentices and to distinguish academic insiders from non-academics. Academic feminists are no less invested in wielding these tools of exclusion than other academics are. They simply wield them according to the specialized rules that demonstrate their mastery of a particular way of thinking called feminism.

## *Notes*

[1] A simple search of World Cat, where most of the world's books are catalogued, shows that during the decade of 1960–1969 there were 89 books written in English that were catalogued with the subject heading of feminism. During the decade of 1970–1979 the figure was 1,673; during 1980–1989 it was 3,343; during 1990–1999 it jumped to 5,306 (some of these numbers are repetitive, reflecting new editions, etc.). Not only has it become more acceptable to write about feminism, there are clearly more people taking up the practice. Not all of these people are academics, of course.

[2] For an early discussion of this dilemma see: Denise Riley (1988), *Am I that name? Feminism and the category of "woman." in history.* Minneapolis: University of Minnesota. For an excellent discussion of the equality-versus-difference debate in feminism see: Joan W. Scott (1988, Spring), Deconstructing equality-versus-difference: or, The uses of poststructuralist theory for feminism. *Feminist Studies, 14,* 33–50.

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# DISCUSSION

## Reply

Estela Mara Bensimon
Catherine Marshall

# Like It Or Not

## Feminist Critical Policy Analysis Matters

Haithe Anderson, in reviewing our chapter, instructs us to (1) recognize we are using the master's tools of academic debate, and (2) back off from the demand that feminist critical policy analysis be applied to all aspects of postsecondary education. It is true, we are, indeed, carrying on academic debate with academic tools; however, we do move beyond academic debate by providing a roadmap for application to actual policy with an array of concrete examples where feminist critical policy analysis will uncover patriarchal practices. But no, we will not accept her instruction to back off. We do not believe the battles are won and we do not believe that being nice, talking the master's language only, accepting gradual loosening of patriarchal structures, is good enough. Are women leaders, of the students or faculty, supported and viewed as fantastic leaders, if they spend more time nurturing collaboration and empowering democratic decision making? Do women's studies majors have lucrative and powerful careers? Can a policy analyst get a government contract if she/he asserts that all policy analysis is value laden and so let's just go ahead and admit that we want to place more value on "women's issues" since they've been neglected in the past? Does the woman scholar feel comfortable knowing that her

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accomplishments are being assessed, not her breasts? Until the answers are yeses, postsecondary institutions have not incorporated the policy implications from feminism's insights.

The purpose of our response is to elaborate on the reasons why the master's tools will never dismantle the master's house. We do so by discussing the opposing meanings of "master," "gender," "tools," and "the purpose of policy analysis" and showing why the master's, i.e., conventional policy analysis, is incapable of undoing the power asymmetries that characterize relations between male and female academics. The insurrection of subjected knowledges represents a challenge to the authority and power of the master's narrative. The master will *not* be pleased by this. The displeasure may be disguised, as it is by Anderson, but the threat to authority and power provokes emotional responses—antagonism, fear, disapproval, hostility—which are masked by the rhetoric of indirectness, provisos, qualifiers, feigned alliance. Such alliances, while asserting they embrace feminist causes, undermine our progress toward creating and validating women's knowledges and spaces in postsecondary institutions. Instead, feminist critical policy analysis tools empower institutions to be transformed, to be able to support thought and policy action beyond the constrained and distorted thinking and behavior of academic and policy analysis traditions. Leaders who are serious about transforming postsecondary education to eliminate patriarchal trappings *need* these tools.

## *What is Feminist and Critical Policy Analysis?*

We assume that not all readers will be familiar with the book chapter that inspired Anderson's critique, therefore, to place this response in context, we start off with a brief summary of the main points. Our chapter consisted of two sections. In the first we laid out the theoretical foundations underpinning feminist and critical perspectives and provided a feminist critique of conventional policy analysis. In the second part we discussed selected higher education studies whose conceptual design, analysis and interpretive methods exemplify feminist critical policy studies.

Thus, we said:

1. Gender is a fundamental category, and policy analysis that proceeds from a feminist critical perspective is alert to the gendering that goes on both in gender-explicit and gender-neutral practices which may advantage men and disadvantage women, even if not intendedly.
2. Feminist critical policy analysis is gender-conscious, not gender-

blind. To do away with power asymmetries and domination that structure relationships between men and women in the academy requires gender-based appraisals of academic structures, practices, and policies.

3. The goal of feminist critical policy is to transform institutions and not simply to "add" women.

We rejected conventional policy studies methods as the "master's tools" because they are the products of disciplinary traditions that are androcentric and were not meant to include women,[1] and therefore they "tend primarily to reflect the experiences, problems and acts of repression of a stereotypically white western masculine self" (Flax, 1992, p. 196). Accordingly, we see the project of feminist critical analysis as being twofold:

> (1) To critique or deconstruct conventional theories and explanations and reveal the gender biases (as well as racial, sexual, social class biases) inherent in commonly accepted theories, constructs, methodologies and concepts; and (2) to conduct analysis that is feminist both in its theoretical and methodological orientations. It involves reading policy studies with a critical awareness of how androcentrism is embedded in the disciplines, theories of knowledge and research designs that are foundational to conventional policy analysis and which ostensibly are neutral and neutered. Accordingly, feminist policy analysis involves the critique of knowledge gained from mainstream educational policy studies as well as the design of feminist educational policy studies" (Bensimon & Marshall, 1997, p. 6).

Feminist critical policy analysis is concerned with the scrutiny of hidden gender bias in taken-for-granted policies and in ferreting out the disparate impact they have on women. In contrast, the focus of conventional policy analysis is on disparate treatment, which represents the liberal interpretation of equality and fairness (Hawkesworth, 1994).

### *We Are Fixing, Not Complaining*

Our work falls in the genre of criticism; it consists of an examination of policy analysis from a feminist perspective. It is not, as Anderson describes it, a "complaint." A "complaint" suggests not an act of scholarship but an act of resentment or lamentation. To characterize our work as a "complaint" is one of longstanding ways in which men of the academy have devalued the work of academic women, and the fact that this "tool" can still be wielded in the pages of an academic journal shows that the "master's" house remains strongly in place.

Anderson, in titling her essay "As if gender mattered" and suggesting that gender is an environmental variable that one need be sensitive to only in the proper contexts, is insinuating, albeit politely, that gender does not have "independent analytical status" (Scott, 1986, p. 1061), as we proposed. For Anderson, gender is only applicable to the analyses of policies that involve women directly. But, as Judith Glazer-Raymo[2] has observed, "Gender does matter, even when it is not articulated. In existential terms, gender, whether male or female, is part of and defines one's identity."

Anderson's criticism of feminist critical policy analysis, regardless of her attempts to position herself as an ally, is simply a restatement of "thinking as usual." Statements Anderson makes, such as "not because I'm hostile to feminist criticism, but because I have learned so much from it"; I am sympathetic with their agenda for change" are in fact the evasive "tools" to stall change that threatens the status quo.

Ironically, the reasoning behind Anderson's arguments against feminist critical policy analysis and her advocacy for a gender-based perspective that is more politically and socially suitable than ours demonstrate exactly the appropriateness of Audre Lorde's (1984) warning: *"The master's tools will never dismantle the master's house."*

Table 1 frames our ensuing arguments to show that feminist critical policy analysis is essential for eliminating the chilly postsecondary environment for women.

TABLE 1
Comparing Master's and Feminist Perspectives

| | Master's Perspective | Feminist Critical Perspective |
|---|---|---|
| Master | Signifies expertise and authority | Signifies control and oppression as in the master-slave relationship |
| Gender | One of many independent variables to be thrown into the analytical mix | "Gender connotes and reflects the persistence of asymmetric power relations rather than 'natural' (biological/anatomical) differences" (Flax, p. 193, 1992) |
| | Gender-blindness is an attribute of fairness | Gender-consciousness is an attribute of fairness |
| Tools | Methods of apprehending the world | Expose gendering in gender-explicit and gender-neutral practices |
| | Asking questions that problematize women | Asks questions that problematize practices and decisions |
| The purpose of policy analysis | Assimilation<br>Help managers make decisions about how to organize, regulate and police the internal order of an institution | Transformation<br>Bring about change, raise consciousness about the embedded patriarchal practices in higher education |

### *Master as Expert, Master as Oppressor*

Anderson's critique rests on the assumption that her definition of the word "master" is everyone's definition. The meaning she ascribes to master can be gleaned in the assertions she makes, such as, "Feminists cannot reject the master's tools, and that it is a good thing too; . . . increasing one's sensitivity to the nuances of the master's tools is the only way to go"; Bensimon and Marshall . . . follow linguistic rules that reveal their mastery of academic ways of making meaning; . . . they [follow] established academic protocols, . . . the 'tools of critique' . . . they urge upon their readers are synonymous with the master's tools, . . . the challenges they offer would not make sense to other members of the profession . . . if Bensimon and Marshall had not mastered some of the academic protocols *handed down by men*" (emphasis added). For Anderson the meaning of "master" is strictly academic; it has to do with expertise or command of the "linguistic rules" that signify one's "mastery of academic ways of making meaning" that separate the masters from the apprentices and distinguish between academic insiders and non-academics. Thus, according to Anderson, the master's tools (i.e., methods) are "nothing more than ways of apprehending the world" that have been handed down to women, presumably because these are the only ways of apprehending the world or because women academics are incapable of developing their own ways of apprehending[3] the world.

Joan Scott (1988) reminds us that "words, like the ideas and things they are meant to signify, have a history." And the history that Anderson associates with the word "master" is fundamentally different from the history that moved Audre Lorde to declare, "*The master's tools will never dismantle the master's house*." The presumption that the master's definition is everyone's definition is precisely the kind of reasoning that leads to analyses that are faulty, partial, and distorting.

*The Master's Tools Will Never Dismantle the Master's House* was the title of a talk given by Audre Lorde on a panel, "The Personal and the Political," featured at the Second Sex Conference held in New York City on October 29, 1979. The title was intended as a criticism of white academic feminists who, in including black feminists only in those sessions that had something to do with race and leaving them out of topics such as existentialism, the erotic, feminist theory, etc., were in fact using the "tools of a racist patriarchy . . . to examine the fruits of that same patriarchy" (Lorde, 1984, p. 98). Lorde's point was that feminist scholars have turned to the "master's tools" in order to gain acceptability and fit into the established disciplinary canons. In contrast, Lorde urges us to turn the "differences" that are the mark of marginalized populations into strengths. She goes on to say,

> For the master's tools will never dismantle the master's house. They may allow us temporarily to beat him at his own game, but they will never enable us to bring about genuine change. And this fact is only threatening to those women who still define the master's house as their only source of support. (Lorde, 1984, p. 99).

For black people the term "master" is embedded in a horrific history of legalized injustice and violence. It connotes the control of one person over another or others based on skin color. Master is associated with the institutions of slavery. It is also associated with masculine representations such as the "man who serves as head of a household" or a "male teacher," as for example, in Anderson's conception of male academics handing down methods to feminist academics.

Standpoint feminism helps us expand on Lorde's use of the term master and its relevance to the project of feminist and critical policy analysis. Feminist standpoint theorists make a case for the view from the bottom, "the slave," as the more complete one. "The point of departure for standpoint feminist epistemology is the idea that knowledge is socially situated. It follows that in order to interpret and understand the situation of a particular group of people, thought has to start from their lives. Essentially, standpoint feminist epistemology urges us to move away from the idea of simply adding the "other" to preexisting frameworks and directs us to ground knowledge on the particular experience of the people we want to understand" (Lorde, 1984, p. 144).

Accordingly, standpoint feminists reject the "master's" view because it is partial and distorting. It is partial because it is derived from a vision of reality that takes into account only the reality of the dominant class or power holders. It is distorting because it tends to normalize the experience of the "master" as the generic experience. In contrast, Audre Lorde urges us "to stand alone, unpopular and sometimes reviled . . . to take our differences and make them strengths" (Lorde, 1984, p. 112). Similarly, standpoint feminists suggest that the position of "outsider within" (Hill Collins, 1986) and "borderline" position (Anzaldua, 1987) provide a vision of the academy and relations within it that are inverse to the master's view (Harding, 1991; Hartsock, 1983).

For example, Patricia Hill Collins argues that it is the awareness of her marginal status as the "outsider within" that provides the black female intellectual with a unique black feminist standpoint from which to analyze life in the academy. She observes, "It is the "outsider within" who is more likely to challenge the knowledge claims of insiders, to acknowledge the discrepancy between insiders' accounts of human behavior and her own experiences and to identify anomalies" (Fonow & Cook, 1991, p. 3).

As black feminists make clear, to accept the master's tools could be self-destructive because it would require us to adopt theories and methods—the tools— that historically have excluded women or devalued them. Lorde's dictum, in the words of Joan Scott, warns us to not be "drawn into the very assumptions of the very discourse we ought to question" (Scott, 1998, p. 36). To adopt the master's tools is to become an insider and assimilate what we described in our work as androcentric perspectives.

"But," Anderson asks, "what makes those disciplines and their methods androcentric?" But, we wonder, why ask a question that Anderson herself so clearly answers? How else, other than androcentrism, could we describe the presumption that academic man handed down to us the "academic protocols" that enable our work to be understood and heard? The implication is that fitting in is contingent on compliance with his rules.

### *The Master's Preoccupation: How Can Feminism be Absorbed into Policy Analysis?*

Androcentrism is also evident in the questions that drive one's work. The paramount question for Anderson is how feminism can be made more palatable so that it can be absorbed into policy analysis without it being disruptive. Accordingly, Anderson says that if the goal is to change the direction of higher education policy the only way to achieve this is by "increasing one's sensitivity to the nuances of the master's tools."

Although not spelled out, we assume that sensitivity to the nuances of the master's tools entails the use of "rhetorical strategies that are *friendlier to men*" such as those "used by liberal feminists whose *pleas for equality* went forward in the name of *human sameness*" as well as in the adoption of "a vocabulary that *softens instead of hardens gender differences* . . . and embraces . . . forms of persuasion that reach out across our shared similarities . . . and promotes images of *an academic world where women are working to improve the conditions of a practice they share with men;* . . . feminist criticism needs to offer solutions that appear to represent *improvements for both women and men*; . . . academia is home *to men who are sympathetic* to the changes feminists want, . . . need representations that are *generous toward their sympathizers and friendly* enough to attract and hold the attention of those [who] are already predisposed to turn the other way when the word feminism enters a conversation" (emphasis added).

Basically Anderson is saying that unless we yield and use the gendered tools of expression expected from women academics demanding acceptance—mothering, pleading, nurturing, accommodating, care taking, soothing, etc.—our project will alienate sympathetic males. Thus Anderson castigates us for our insistence in breaking away from the academic practices that force women academics to engage in "mom work" and "smile work" (Acker, 1992; Tierney & Bensimon, 1996) and assuming the burden "to do all the "cultural" and "moral" work for healthy gender relations." Besides being exhausting and unfair when men don't do their share, the sex-role stereotyping of smile-mom work leads women faculty and students very close to sex roles that devalue women as mere objects for male sexual pleasure. Even if that pleasure is "just" pleasantries or flirtations, it recreates and reifies the unequal sexual dynamics that chill women's pursuit of comfort in the academy.

### *The Master's Misconception of Gender*

Anderson's view of gender as an environmental condition that is relevant only some of the time is simply a way of saying that "it does not have the analytic power to address (and change) existing historical paradigms; . . . it is a by-product, it has no independent analytic status of its own" (Scott, 1986, pp. 1057, 1061). As an environmental variable gender refers only to those areas both structural and ideological involving relations between the sexes and therefore gender is not seen as relevant to issues where gender is not explicit. As an environmental variable the implication is that gender is a concept associated with the study of things related to women.

For example, if the participants in a symposium held at the 2001 meeting of the Association for the Study of Higher Education, "Women, Higher Education and Neo-Liberal Politics: An Application of Critical Feminist Policy Analysis," had regarded "gender as an environmental condition" whose importance depends "upon the policy issue being explored," they might not have called attention to the "benign discrimination" that is being produced by the policies of the Bush-Cheney administration (Glazer-Raymo, 2001), welfare reform (Shaw, 2001), academic entrepreneurialism (Slaughter, 2001), and gender composition of disciplines (Winsten-Bartlett, 2001).

The fundamental difference between treating gender as an environmental variable versus engendering supposedly neutral structures, policies, and practices is that the former problematizes women (blame-the-victim or change-the-victim approach) and the latter problematizes practices and decisions that are assumed to be gender neutral in order to show that they can and do result in perverse consequences for women.

The difference between the kinds of questions asked from the master's perspective of gender-as-variable versus those asked from the feminist critical perspective of gender-as-analytical-category are illustrated below, for asking questions about faculty (the same can be done for student retention, athletics, curriculum, and pedagogy, etc).

When gender is posited as an environmental variable, as in the question "Why are women faculty less productive than male faculty?" men become the reference point for women's productivity, which leads to the obvious conclusion that women are less productive because, compared to male faculty, they publish less, they have less funded research, they teach more, and so on. Inevitably an analysis from this perspective leads to asking how women can be made more like men, how can we get them to write more, to get more grants, and to teach less. Often the cures that emerge from this perspective are compensatory strategies such as mentoring. On the other hand, when we ask, "In what ways does 'gender' impact productivity?" the analysis is centered on what constitutes productivity and how individuals accrue it and in what ways the means of accruing productivity disadvantage and advantage females and males. Feminist critical policy analysis reframes questions.

### *The Feminist Preoccupation: How to Make Policy Analysis Accountable to Critical Feminism*

Earlier we said that the master's preoccupation is how to absorb feminism into policy analysis. In contrast, the feminist preoccupation is the inverse, "How to make policy analysis accountable to critical feminism."[4] The difference between the feminist and the master is that they are motivated by different interests. The master's interest is to maintain

TABLE 2

Re-framing Gender Policy Questions

| When gender is a variable we ask: | When gender is an analytical category we ask: |
|---|---|
| 1. Why are women faculty candidates less likely to get job offers than male candidates? | 1. In what ways do faculty appointment practices affect men and women? |
| 2. Why are women faculty less productive than male faculty? | 2. In what ways does "gender" impact productivity? |
| 3. Why are women faculty less successful in getting tenure? | 3. In what ways is "gender" a factor in socialization processes? |
| 4. Why do women faculty earn less than male faculty? | 4. In what ways is "gender" embedded in definitions of merit? |
| 5. Why are women angry? | 5. What effective changes has the university made for women's inclusion and acceptance? |

policies and practices intact. For example, Anderson applauds "the number of academic texts that claim feminism as a subject heading" (p. 5), but who is reading them? Is feminist critical policy analysis a topic in the policy analysis canon of public administration, higher education, and policy analysis and planning curricula? Do governments ask for studies, and do university presidents pay big bucks to bring in feminist critical policy consultants? Do even the readers of this higher education journal feel compelled to get "up to speed" on such tools and perspectives? When the answers are yeses, policy analysis can assist institutional change. Then, any well-trained and credible policy analyst will know to:

1. Recognize that past policies constructed in arenas where the discourse was conducted without feminist critique are flawed and conduct policy archeology (Scheurich, 1994) to search how and by whom policies were framed as they were, thus facilitating re-framing;
2. Re-construct policy arenas and discourses, knowing the need to engage and even champion the needs and voices of people heretofore excluded, or included in token ways;
3. Include feminist questions as they scrutinize decision premises, language, and labels while constantly asking, "what do feminisms tell me to critique?"
4. Employ alternative methodologies (e.g., narrative and oral history) to uncover the intricacies of meaning systems in individual and collective stories both to expose the emotional and personal results of exclusions but also to create alternative visions that transcend boundaries "to shape the formation of culturally appropriate social and educational policy" (Gonzalez, 1998, p. 99);
5. Search for the historically created and embedded traditions, social regularities, and practices that inhibit women's access, comfort, and success;
6. Take an advocacy stance, knowing that policy analysts are change agents, carriers of insurrectionist strategies and subjugated knowledges that will be subjected to discourses of derision by powerful forces benefiting from the status quo.

Anderson worries that policy analysis is a tool of managers, planners, and leaders and is not always seen as an academic discipline. As a result, she believes policy analysts must serve those leaders, must take as given the questions as framed for them. But taking such a servant position is exactly *why* policy analysis gets no respect. And deeper feminist questions will never come up if we accept Anderson's recommendation that we recommend step-by-step change. Quoting Anderson, who quotes Gill and Saunders, "Policy analysis in higher education requires an understanding of the higher education environment" (p. 16), we say "of course!" But instead of then concluding, as she does, that we must tread carefully in that environment, we assert that the policy questions must mount major challenges to that very environment! We are not seeking policy recommendations of the "add women and stir" ilk, nor are we seeking simplistic affirmative action. We want policy analyses that rearrange gendered power relations, not ones that simply create our inclusion in institutions that have not been rearranged. We advocate policy analysis that creates a new discourse about gender—one that can facilitate transformation of the academy and "envision what is not yet" (Wallace, 2002).

In sum, in our chapter laying out the need for feminist critical policy analysis, we are, indeed, building upon academic traditions, traditions of critique and debate, and now we continue using these master's tools. However, we place our work in power and politics feminisms to show that playing *only* the master's tools games will leave us spinning our wheels, playing a game that was structured for white males and that has culturally embedded tools for keeping it, basically, that way. Until the questions are asked differently, until we construct policy analyses with overt intentions to create gender consciousness, to expose the limits of gender-neutral practices, to expose the asymmetric gender power relations, certain women will not be welcome in academia.

And, finally, no, Anderson and readers should not fear that we want to "invert the old logic of the academic hierarchy and exclude men" (p. 19). However, we *are* saying that until we use our feminist theory and language of critique as grounding to command forceful critique of continuing cultural exclusions, the only women who will be comfortable in academia are those who expend some of their workplace energies to be pleasing (as women) to men. Anderson wants us to "hold the attention of those [who] are already predisposed to turn the other way when the word feminism enters the conversation" (p. 24). Sure, that is called strategic feminism and recognizes that feminists are challengers from the fringes, trying to get the hegemonic center to listen.

Astin and Leland's (1991) study of academic women lends perspective here. In the 1940s and 1950s, women academics were "predecessors," often sole women in their profession, often sacrificing personal lives for their careers. Later, the "instigators" took leadership in the 1960s and 1970s, mentoring and eventually broadening women's issues to change academic life, to rid itself of bastions of patriarchy in the canon and in the structures, e.g., of sports, student life, tenure clocks, and so forth. Now, the "inheritors" do not always know how tenuous and vulnerable the changes are. Anderson sounds like an inheritor as she discusses whether feminist critical policy analysis is needed. She implies that feminists should acknowledge that, because our books get published and purchased by libraries, we should be grateful and we should rest assured that there are changes that, gradually, are changing the culture. But too many "inheritor" women academics today think the problems are solved, that their fellowships, invitations to conferences, and publications demonstrate that sexism is gone. Don't they notice that their salaries are lower than those of their male colleagues? Don't they notice that their tenure review files have to be more perfect than those of their male counterparts? Don't they notice that if they do not act as men think women should act they are shunned?

We, Bensimon and Marshall, as instigators, know the full force of resistance to women in the academy and we also know how vulnerable our positions are.

## *Notes*

[1] As Jane Flax observes, "Liberal-Enlightenment discourses such as that of Locke or Kant were not meant to include women, and their coherence depends partially on our continuing exclusion" (1992, p. 195).

[2] Personal communication.

[3] We use the term "apprehending" in order to remain faithful to Anderson's definition of methods; however, our preferred definition of methods is that they are ways of making sense of phenomena for the purposes of describing and explaining. The researcher as someone dedicated to "apprehending the world" conjures images of control, dominance, repression, which in the name of science have contributed to marginalizing women and just about any culture, history, language, or religion that is not Western European.

[4] We have borrowed the idea of making policy analysis accountable to critical feminism from Shearer and Arrington, 1993.

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# Book Reviews

*Politics and Public Higher Education in New York State:*
*Stony Brook—A Case History* by Sidney Gelber. New York:
Peter Lang, 2001, 375 pp. $32.50.

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Sidney Gelber, Vice President for Academic Affairs at the State University of New York at Stony Brook from 1971 to 1981, sets out in this book to tell the story of the political influences on the establishment and early development of a state university system, specifically New York state, and of one of its campuses, Stony Brook. The early chapters set the social, economic, and cultural context for the development of public higher education in New York State in the period during and just following World War II. A middle section presents events surrounding "the birth pangs of a university: 1955–1956," and continues through exchanges between successive governors of the state, different executives in the state system, particularly its educational sector, and various interested parties, business and political, in the local communities in which the State University of New York at Stony Brook was evolving. The last third of the book details the particulars of the events in and around the inception and growth of the Stony Brook campus itself. This review is addressed to several issues: (1) the contribution of the book to our knowledge of the period, (2) the aim of the author as historian, and (3) the quality of the writing itself.

The book is ambitious. It purports to review the politics of New York State, the emergence of public higher education in the state, and the intersection of the two. Further, it attempts to deal with historical phenomena both macrocosmically and microcosmically—providing a perspective on the successes and failures of the integration of "system" at large with actions at the level of one campus. In general, Dr. Gelber is quite successful, though not in all the dimensions one might expect of an historical treatise. For example, his review of the antecedents of public higher education in the United States prior to and during the 1940s, particularly as those events may have presaged the development of higher education in New York State, is competent, but not particularly ground breaking, having been comprehensively and well-covered in other publications (Graham & Diamond, 1997; Carmichael, 1955; Abbott, 1958). There have also been many books about the politics of education in New York State (e.g., Glazer, 1989; Hines & Hartmark, 1980; Hines, 1988; Milstein & Jennings, 1973), many about the competition between public and private higher education (Riesman, 1980; Gardner et al., 1985), a considerable number on the impact of the federal government (Parsons, 1997; Neusner, 1995; Rudy, 1996; Furniss & Gardner, 1979), a very large number about the impact of U.S. foreign policy on college campuses in the 60s and 70s (e.g., Altbach, 1973). Gelber's assiduous and conscientious pursuit of relevant data does, however, provide a moderate and most useful increment in what we know about these periods and events.

Gelber's method is to present us with a full cast of characters to play out the political scenes over the period. These include the many components involved in educational policy decisions in a state (e.g., institutions, interest groups, community organizations, commissions, state agencies, executive, legislature, statewide boards, parents; see Crosson, 1984) as well as its major players (e.g., Frank Moore, one time Chair of the SUNY Board of Trustees, Oliver Carmichael, Vice Chair of the Temporary Commission to Study the Need for a State University, Alvin Eurich, President of SUNY, Samuel Gould, President of SUNY, Harry Porter, Provost, and, of course, the officers of the State University of New York at Stony Brook. Gelber has done an exceptionally fine job of garnering the documents that reveal the intricacies of the relationships among these participants. That there should be conflict among such powerful persons is to be expected. Executive leadership positions at the state government, the legislature, the governorship, the board of regents, the board of trustees, and the institutional presidencies are filled with people who are used to expressing themselves, often without opposition, and to exercising potent power and authority. In the miasma of evolving system structure, there were bound to be conflicts, especially when local entities suboptimized around their own, rather than system goals (Newman, 1987). As Schick, Novak, Norton & Elam (1992) say, institutional autonomy is forever at issue.

> For many it is a fragile right, and as many examples testify, it cannot be taken for granted. For some, state systems have increased autonomy significantly in comparison with the past. This is true, often, for former teachers colleges and for branch campuses in large universities that have now achieved institutional identities of their own. For others, such as the most visible research and land-grant universities, significant autonomy has been a fact of life, and their inclusion in systems or under powerful coordinating boards may have made them feel that increased controls have been placed upon them. And for institutions governed by their own boards, preserving autonomy is a constant struggle with the legislature of the coordinating board to resist intrusion or the establishment of a single statewide system board. (p. 55)

Though Gelber reads the history of this period as continuous, if ever there was an argument for the postmodernists, the discontinuity between pre- and post-war conditions in higher education is it. The expansion of higher education after the second world war was fraught with uncertainty and diversity of opinion about the proper nature of the system, how it should grow, and who should pay for it. Although authorizing legislation was passed in 1948 for the establishment of a state university, nearly ten years passed before new institutions were actually established. The decades that followed were equally uncertain, with the severe national economic vicissitudes of the 1970s, government interventions and shifts in aid-to-education policies, declines in student populations, and then escalating demands for more spaces as equal opportunity values became stronger (Richardson, Bracco, Callan & Finney, 1999). As Neil Smelser (1974) observes about the difficulties of educational decision making during this period in California:

> What most obviously happens in a growing system is an increase of things over which authority and coordination must be exercised. As a nation-state grows in population, resources, wealth, and institutions, the exigencies of integrating and coordinating them within a single political apparatus grow

> accordingly. As a family grows in size, so do the problems of coordinating its activities. And as an educational system increases its resources, organizations, and population, its need for coordination and authority grows.

So it was in New York. Despite the active resistance of the New York State Board of Regents, the nation's oldest state coordinating body, and other politically powerful opposition, New York eventually came to have the largest number of public colleges and universities in the United States.

The primary value of *Politics and Public Higher Education* lies in its "reportorial" contribution. Gelber has performed yeoman service in tracking down and compiling a diversity of information from many sources heretofore scattered and unorganized. The book is packed with data, full of formal reports excerpts from newspapers, and statements of participants, all put together in a tightly integrated prose style. The different resources are linked together to tell a story, if a commonplace one. The value of such a "reportorial" effort, however circumscribed, is affirmed by Cameron Fincher (1991) in his own history of the University System of Georgia: "Dry and dusty reports often tell us what was missing 'at the time,' what was needed but not supplied, and what the next 'stage of development' might possibly be." (1991, vii.)

On the other hand, however useful this compilation of "facts" may be, the reader in this case is left unfortunately without a framework for understanding them. Omitted is a clear cut statement of author purpose, a point of view, or a thesis. At the very least, Dr. Gelber might have posed for the reader a number of questions his research findings are intended to answer. For example, in a recent review of state higher education, Mactaggart and Associates (1996) give a persistent "focus" to the assemblage of his data by asking such key questions as:

> What combination of political, economic, and social events underpinned the change? By what processes was the change brought about, and how did the change process influence the results? Is the higher education enterprise better or worse off as a result of the change? Will the public be better served under the new order of things? Is the new structure stable, or does more dislocation loom in the near future?" (p. xi)

Further, though the book is a thorough reporting of events in a turbulent time in the history of American higher education, it is rendered in a somewhat antiseptic, non-analytical, descriptive style. Gelber has chosen to write a history in the tradition of Beard, rather than Tocqueville or Burkhardt.

Gelber's manner of writing history includes little or no narrative, little interpretation, infrequent placement in contemporaneous cultural and social context, and rare use of sophisticated social science tools—economic, sociological, organizational. There has emerged in recent years a fairly sophisticated social science for analyzing interorganizational fields (see, e.g., Galaskiewicz, 1979), which Gelber might well have used to understand the events in New York State. As McCullagh (1969), notes, this kind of simple detailed description of historical events is less than adequate. What is needed is a convincing presentation of the "grounds" for believing that one event logically follows another. Or, as Marsak (1970) notes:

> The immediate purpose of narrative historians . . . is to paint a portrait of a situation or a process, which, like all portraits, seeks to capture the unique pattern and peculiar characteristics of its particular subject; not to be an X-ray which eliminates all but what a great many subjects have in common. (p. 62)

Gelber is also steadfastly non-evaluative. For example, speaking about Nelson Rockefeller's interest in affirmative action in 1969, he writes: "It does appear that Rockefeller was serious about this issue, but whether his concerns were populist, political, or opportunistic in nature is hard to determine." (p.251) What Gelber truly believes or/and his evaluation of the wisdom of the action, he is largely unwilling to divulge.

Because writing history involves a choice of "event relevance," it is easy and admittedly perhaps gratuitous to take issue with any number of Gelber's selections, even while recognizing his obligation to ignore allegedly more peripheral situations and people. Indeed, Gelber himself asserts the need to exercise judgment about what to include and exclude. Nevertheless, here are examples of three errors, one of commission and two of omission. In the first example, in a chapter titled, "The People's Movement," covering the period immediately following the war, Gelber implies that the general public was clamoring for the establishment of state universities. Other observers of the period (e.g., Connery & Benjamin, 1974) would disagree. Certainly, returning veterans wanted to attend college, but they preferred to be admitted to esteemed private institutions (Olsen, 1974). Indeed, the city of New York sought state money to upgrade existing teacher's colleges, rather than to aid in the establishment of new public institutions.

A second example lies in Gelber's decision to write only two paragraphs about the marches on Albany in 1947, preferring to minimize the overall impact of these marches on Thomas Dewey's candidacy for the Presidency. Gelber misinterprets the goal of the marchers, however. Their concern was not with the establishment of a state university but with unfair admission practices at private professional schools (Carmichael, 1955; New York City, 1946).

The third error is reflected in Gelber's relative slighting of the role of Oliver Cromwell Carmichael. Carmichael was an influential national and state figure in his role as President of the Carnegie Foundation, member of the Truman Commission on Higher Education, and later, the first president of SUNY. Carmichael was appointed Vice Chair of the Temporary Commission to Study the Need for a State University in New York, a body whose membership was so politically balanced that it was unable to produce much of note. This legislative failure might have been worth more extended discussion by Gelber, as it surely had an important impact on the course of Stony Brook's history.

Perhaps the most problematic part of this history, however, is the absence of a moral position by the author, particularly concerning the organization and administration of the State University of New York at Stony Brook, under the presidency of John Toll in the decade of the 1970s. Gelber is clearly loyal to Toll and admiring of his tenacity and persistence which Gelber sees as essential to the "miraculous" success of Stony Brook. Others, however, have portrayed President Toll in far less laudatory terms. The administration under Toll at Stony Brook engaged in a number of highly questionable, though not uncommon practices for the times. In particular, Toll and upper-level colleagues attempted to build the university "on the backs" of the undergraduate students. Enrollment numbers drove the budget, and the administration did everything in its power to build those numbers. Gelber notes without judgment the policy of lowering admission standards for entering students from local community colleges. Yet this policy resulted in intolerable housing conditions, execrable undergraduate education, and disappointment for the faculty who were brought to Stony Brook with an expectation of teaching students with higher academic quality. A research report of the Group for Human Development and Educational Policy at Stony Brook published in 1973 notes:

> Eighty-eight percent of the entering freshmen *expected* that "most of the students here are pretty happy." Our data show that once they are here about half of the students declare themselves severely depressed a few times a month or more often. They report that the quality of teaching, the conditions of scholarship, sense of community, and opportunities for exploring personal meanings are often at an unsatisfactory level. (Emphasis added.) (Group, 1973, p. 5)

Gelber's memory is selective as he describes in positive terms another report of the Stony Brook campus condition (this one the pre-visit self-study report for the Middle States Association of Schools and Colleges, prepared by a committee of faculty, administrators, and students at Stony Brook. In point of fact, this report was absolutely devastating in its condemnation of the state of the institution. As reported in the campus newspaper, "Following an 18-month study, a 150-member University task force has composed an essentially negative document severely criticizing the school's academic structure, its administrative organization, and the general quality of life among students and faculty (Soiffer, 1974). Gelber's decision to soften the critique reveals his need to paint the university community as collegial, content and united in its support of the goals and tactics of the administration.

In addition to the moral vacuum, what is missing from almost all of Gelber's reporting are explanations or even speculations as to *why* members or factions adhered to their particular positions. *What* they did we already know (or are led to believe). It is naive, for example, to believe that the Temporary Commission on the Need for a State University members were simply (or even primarily) ideologically motivated (e.g., toward creating more educational opportunity for the residents of NY State. By all accounts, they were as much concerned with protecting the private colleges and defending the Regent's postwar plan. Yet, Gelber's assumption of good, public spirited motivation prevails. Readers would have benefited here as well as throughout the book from a deeper investigation into and analysis of the motivational sources of reported behavior.

In the end, this is a book about politics, but not necessarily in the bad sense. As Maguire (1971 notes,

> Politics, in the richest sense, is the process through which change is achieved. All political movements are efforts to redistribute power and reshape the ways it is shared and exercised. Hence our second principle: Academic change requires new alliances among those who constitute the university, that is, new patterns within established constituencies as well as recognition of new or overlooked constituencies.(P. 96)

Millett (1974) adds that politics "is a word of noble purpose and great promise. Politics is the process by which a society seeks to pursue its primary governmental goals and distributes the benefit of governmental action." (p. 115) It would have been helpful for the author to test his observations of the political realities in New York State and at Stony Brook against this ideal.

In the forward to the book, eminent historian Hugh Davis Graham describes the author as a "participant-observer" whose story is told "from a perspective of institutional pride and loyalty moved both by collegial affection and, occasionally, by painful memory." (p. xiv) We must beg to differ somewhat. Because Sidney Gelber lived through and was a vigorous, active leader during this period, readers would also have benefited from his personal insight, from reports of his personal feelings, and yes, from his anger at certain events or people. Instead, we have a rather circumstantial, unemotional retrospective review (one that does not quite come as alive as it might.

As reviewers of Sidney Gelber's book, we are most admiring of the sustained energy and desire for complete coverage that must have motivated the author's research. For this book is, indeed, formidable in its comprehensive compilation of relevant information. And, we are well aware of the impropriety of taking issue with characteristics of the writing that fail to meet criteria of good historiography espoused by historians with different writing objectives. Nevertheless, somewhat wistfully perhaps, we hoped for more. In 1973, the senior author of this review attended a social gathering at the home of Vice President Gelber. At the urging of his friends, Dr. Gelber sat down at his piano with a friend to sight read a fast-paced Brahms waltz for four hands. He played beautifully and sensitively, with verve and obvious skill. As one reads Gelber's history of politics in New York State and his telling of the story of Stony Brook, one can only wish he had expressed the same fine interpretive qualities in his historical exposition.

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*Globalizing the Community College: Strategies for Change in the Twenty-First Century* by John Levin.
New York, NY: Palgrave, 2001. 193+ pp. $35.00.

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When I saw John Levin's *Globalizing the Community College* on the bookstore shelf I thought "Oh no, here we go again." Here's another treatise full of tips on how to make colleges leaner and meaner. I expected the usual talk about how institutions can find their market niche, do more with less, get more bang for their buck, and so on. Just a few months before, in the fall 2000 issue of the *Community College Review*, Levin (2000) foretold his position, or so it seemed. In cold, dispassionate terms, he described the future of two-year schools:

> . . . community colleges will function more on a model compatible with business norms: a fluid organization, with little reverence for academic traditions, little evidence of a dominant professional class of faculty and more evidence of a professional managerial class, more emphasis on technology and less on full-time labor (p. 21).

I have been an instructor at community and technical colleges for nine years. As I read this passage the first time I thought about my profession, my students, and my discipline. I heard a death knell ringing. When the full-length book was released, I presumed there would be plans therein. I expected to find strategies for automating community colleges to the point where they dispense credentials like candy from a coin-operated vendor, but I was pleasantly surprised. When community college professionals pick up Levin's new volume, what they'll hold in their hands is not a set of strategies at all. Instead they will hold in their hands a mirror. In these pages readers will see a clear reflection of what community colleges are today, and an image of what two-year schools may become if steps aren't taken to reverse current trends.

*Globalizing the Community College* is built on a mass of data collected at seven institutions in the western U.S. and Canada. The study followed a "qualitative multiple case study design" which involved "document analysis, interviews, informal conversations, observations and the use of informants" (p. 7). The study focused generally on the changing role, mission and organization of community colleges during the decade of the 1990s. Specifically, the study was designed to shed light on the "external forces that influenced or precipitated internal change" (p. 6). Those forces include politics and electronic information, along with the broader push of cultural and economic globalization.

Levin uses an eclectic theoretical framework to interpret data collected over three years, 1996 to 1999. At times, the analysis is informed by the venerable tradition of Max Weber, made contemporary in the sociology of Paul Dimaggio and Walter Powell (1983). At other times, the analysis bends more toward the canons of freshman literature courses, Charles Dickens (1988) and Thomas Hardy (1958). In between, there is a mixed bag of citations, owing much to the research on community colleges in both the U.S. and Canada (Dennison & Gallagher, 1989; Kent, 1995). Occasionally, the approach feels stretched between disparate perspectives. Yet, the wide range of views and data do not detract from the analysis, given the broad, indeed "global" nature of the subject.

In short, Levin suggests the cultural and economic globalization of the 1990s created a landscape on which community colleges were transformed as institutions. In some cases, such as that of shrinking public support for higher education, community colleges were forced to change in response to a new fiscal climate. In other cases, decision-makers in community colleges precipitated changes on their own, without direct external pressure. Through the process of identifying themselves as corporate board members, college officials initiated changes in their institutions that largely reflected the interests of business and industry. This was a major switch, as the guiding values of two-year schools had previously been tied closely (in the 1960s and 1970s) to the social and developmental interests of students, along with the needs of the local community. In Levin's words, "the shift was from community service to private sector interests" (p. xx). His description of this shift is the most significant thesis in the book. In a myriad of ways, Levin documents the change in our cultural understanding of the two-year school: from that of a community resource designed to further social goals and nurture citizens, to that of a public, tax-supported means to train workers for the private sector.

Through the course of describing this change, Levin provides a much-needed perspective on the "learning revolution" now sweeping North American colleges. From its beginning in the middle 1990s, the "learning college" concept has shaken the foundations of institutional culture in two-year schools (O'Banion, 1997). In the process, community college professionals have been polarized into camps, "true believers" that recite learning college rhetoric with uncompromising zeal, and "naysayers" that question the social and cultural consequences of the agenda set forth in the learning college literature.

At present, true believers have the upper hand, as the basic tenants of the learning college concept are very nearly sacrosanct. Still, Levin suggests the learning college paradigm is largely ideological. Even though the learning revolution is touted as a universally positive movement, it represents a partisan and conservative view of the community college, a direct challenge to the most cherished values inherent in the liberal view of education.

> With the concept of a learning college emerging as a beacon of change, the purposes of the institution decidedly moved from individual and community betterment to economic ends: development sites for workforce preparation (p. 170).
>
> Institutional rationales paralleled the view of education and training as a commodity, students as customers, and business and industry as clients—all reinforcing market ideology (p. 17).

The changes that took place in the community college during the decade of the 1990s stand in stark contrast to the spirit of human development that drove the institution's expansion in the 1960s and 1970s.

Although Levin appears to lament the shift in our understanding of the community college's role in society, readers are left to believe the future holds little promise of improvement. Despite the book's title, there really are no *Strategies for Change* offered here; there is no agenda for a renewed sense of institutional mission, no program poised to overturn the changes of the 1990s. The exclusion of a sound strategy for change is curious given the book's title, but the omission is more than a mere oversight. In the face of the overwhelming changes taking place in community college education, it is easier to point out the partisan and problematic nature of current attempts to reform or restructure, than to offer genuine alternatives. In my own professional life I found it easier to leave institutions flooded by the new "learning college" rhetoric than to face the prospect of fighting to save the dignity and tradition of academic culture in a college that is willfully succumbing to the forces of market ideology. Most recently I left a secure post at a technical college in order to find a two-year institution where academics were still respected, a place where the liberal arts were still welcome and honored.

The good news is I found such a place. There are two-year schools that maintain a strong student focus and also challenge themselves to offer the finest liberal education available. From my present position I can say with pride there are community colleges where being focused on the welfare of one's students means more than the promotion of "learning for the sole purpose of earning" (Levin, p. xx). In other words, there is hope. However, one thing remains clear, community colleges underwent broad and decisive changes during the decade of the 1990s. Levin's work stands as a resolute confirmation of those changes.

*Globalizing the Community College* is a thoughtful look at a respectable data set, but readers truly won't find *Strategies for Change* or a program for the future here. There are no calls for action. There are no plans for reemphasizing the role of two-year schools in a strong democracy, only reflections on where community colleges came from, and an accurate, research-based depiction of what they are today.

Descriptive research of this kind is instructive. It can inform policy decisions; it may even prompt some to alter their professional practices. But this book also reminded me that research cannot change institutions for the better by itself, even when it is well conceived. After reading this report it remains obvious that students are served, traditions are preserved, and colleges are improved by people who work in and care about them. If you count yourself among those who care about the role and future of community colleges, Levin's work belongs on your shelf. You'll be left to devise your own strategies for combating corporate culture on campus, but this book confirms that your cause is just.

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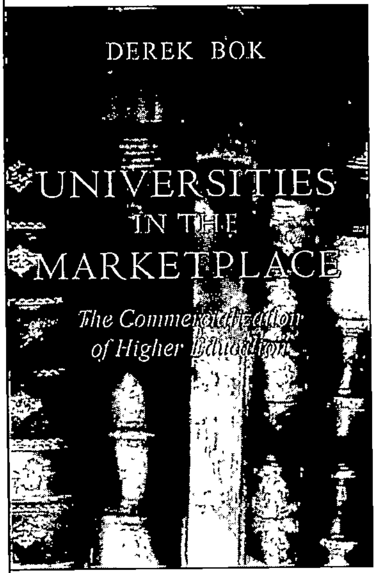
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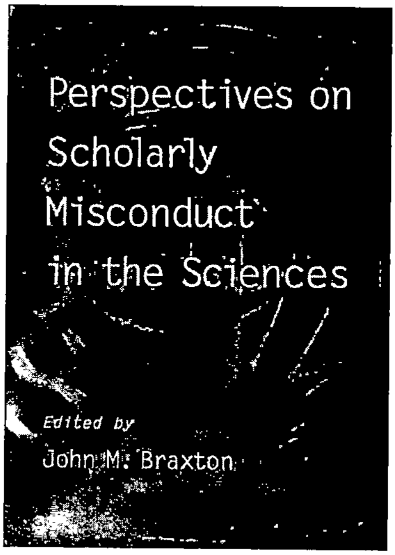

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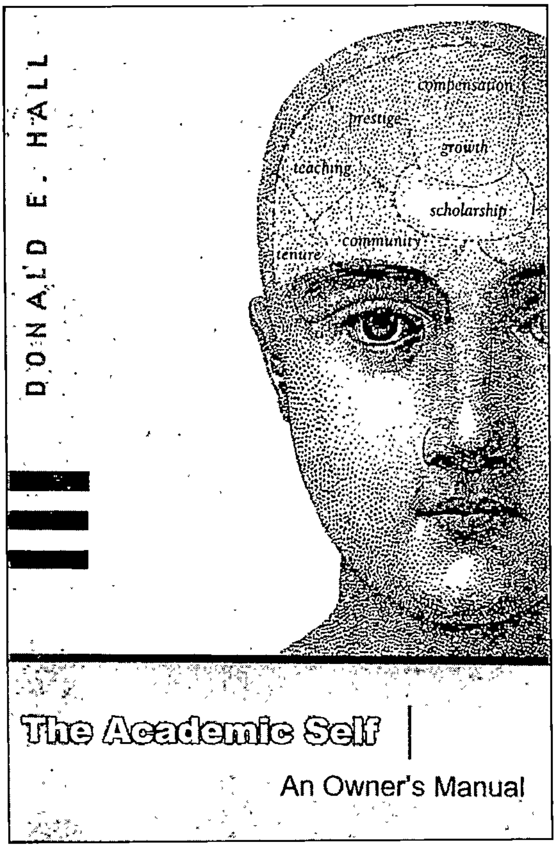

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# How Do We Know a "Continuous Planning" Academic Program When We See One?

## *Introduction*

In the early 1990s, following numerous reports criticizing colleges and universities for inadequate responsiveness, a number of higher education leaders began advocating "total quality management" (TQM) principles borrowed from business (Chaffee & Sherr, 1992; Change, 1993; Seymour, 1993; Sherr & Teeter, 1991). Feeling squeezed between declining public opinion on one side, and cuts in public funding on the other, they hoped TQM might resolve the difficult question: How can higher education continue to meet new societal demands without the ability to expand? Throughout the postwar period, public funding for higher education had increased to cover the costs of rising enrollments and new branches of learning. More often than not, dissatisfaction with the status quo had been remedied by adding new options rather than by making difficult choices among competing priorities. By the late 1980s, however, most college administrators and national leaders had become convinced that retrenchment, which had begun with the oil crisis of the early 1970s, was a permanent condition, not merely a short-term aberration. This meant that emergency belt-tightening measures, no matter how necessary or painful, would not be sufficient over time because they failed to address the more fundamental question of how to survive, let alone thrive, in a zero-growth economy.

*Charlotte L. Briggs is a visiting assistant professor at Loyola University Chicago, Joan S. Stark is professor Emerita at the University of Michigan, and Jean Rowland-Poplawski is a doctoral candidate at the University of Michigan.*

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TQM appeared promising as a strategy for improving effectiveness under steady state conditions because it focused on setting very clear priorities for investing resources and reducing waste. It advocated organizing personnel into teams committed to a mission that focused on the needs and preferences of external stakeholders, and it called on the teams to base their decisions on objective data rather than on subjective assumptions.

Many academic personnel, however, responded negatively to TQM. Among other reasons, they were put off by the application of business language to education, such as calling students "customers", and graduates "products." They believed that quality was already their goal and that more management was not needed to achieve higher levels of excellence. Furthermore, many were suspicious that in practice TQM initiatives would emphasize increased productivity and cost cutting rather than quality.

Nonetheless, a number of higher education leaders saw benefits to TQM if it could be adapted for the higher education environment. Some called this adapted approach continuous quality improvement (or initiative) (CQI) (Marchese, 1991, 1992). CQI encouraged colleges and universities to place a greater emphasis on constituent input and satisfaction, in essence, defining excellence in more service-oriented terms than it had been defined previously. The words "continuous" and "improvement" (or "initiative") fit better with academic sensibilities and expectations than did the heavy-handed sound of "total" and "management."

During a burst of CQI initiatives on various campuses in the mid-1990s, my colleagues and I began to notice that few were drawing parallels between the need to continuously improve various administrative systems and the need to continuously reshape the curriculum to meet changing conditions and interests. It seemed to us there could be no function within the academy that called for more continuous vigilance and responsiveness than the college curriculum. Research by Stark and colleagues (1988) had found that the majority of faculty members constantly adjusted their individual courses to keep them up-to-date and to improve their effectiveness, but we wondered whether we could find examples of similar ongoing adaptation at the program level. That is, could we find models of department-level curriculum planning that engaged groups of faculty members in frequent reappraisal of the content, processes, resources, and outcomes of their program curricula? Previous interview studies suggested that faculty members were not accustomed to thinking about curriculum planning as a program level activity and often reverted to describing their own individual course planning when asked to discuss program planning in their departments (Stark et al., 1997). Had recent assessment initiatives changed that? Were there some departments that pursued program planning as a group responsibility on a regular basis rather than waiting for external pressures to force a major overhaul? If so, what were these departments like? What motivated them? What kind of leadership did they have? And in what ways did faculty members collaborate in program planning? In the spring of 1996, these were the questions that launched the study we now call Project CLUE, Curriculum Leadership for Undergraduate Education.

Judging from research and news reports, both in the mid-1990s when we began Project CLUE and now in the year 2002, it seems that colleges and universities have applied continuous planning principles primarily to their administrative units and seldom to the curriculum. In fact, even during the initial phases of our study we began to hear that the continuous improvement movement had become passé in business and, subsequently, had failed in higher education as well. While all accredited institutions now face mandates to assess student outcomes, regional and specialized accreditors are only just beginning to press institutions to actually use outcomes data to inform their academic decisions and to do so as part of an ongoing, cyclical planning process. Many faculty members continue to resist these efforts to promote a systems approach requiring programs to assess outcomes in light of explicit goals and objectives and then to initiate improvements. Wergin (1999), for instance, reported that departments recently have engaged in a great deal of evaluation activity, but that its cumulative impact has not been constructive change in departmental planning practices nor a stronger culture of collective responsibility. Indeed, he said "Most departments and most faculty failed to see the relevance of program evaluation and assessment to the work that they did."

Yet, despite faculty resistance to external mandates, we began this inquiry noting that some department faculties do work in teams to develop curricula, define departmental vision, measure student progress, and make changes they believe to be quality-driven (though they are more likely to use the term "excellence" than "quality"). Without a doubt, many also engage in the practice of "benchmarking," which is basic to continuous improvement models, when they identify other departments or programs they view as excellent and then attempt to emulate them.

It appears that principles associated with continuous improvement enjoy varying degrees of adoption within higher education. Some, such as a commitment to excellence, have been enduring features of academic culture for as long as anyone can remember. Others, such as using student satisfaction data in planning, have recently been accepted by some departments and are still rejected by others. While an economic boom in the late 1990s spelled a brief reprieve from intense pressure for rational planning, recent financial declines suggest that accountability mandates are likely to multiply again and never to be very far from the campus gates. If few faculty members view as helpful either the language of TQM or the strategies of assessment mandated by accreditors and policymakers, what types of ideas, standards, or guidelines would be more useful for supporting voluntary continuous planning efforts or for making program reviews more genuinely formative?

The researchers of Project CLUE conducted interviews with department chairs and faculty members in 44 departments around the country who might, through their own practices, provide some answers. These departments were nominated by their provosts as being especially attentive to curriculum planning at the program level. This article describes some ways to recognize "continuous program planning" as it already exists, to varying degrees, in the group of exemplary departments we studied. We present our findings as a set of 4 criteria and 20 indicators to assess the extent to which a department's program-level curriculum-planning efforts occur on a regular rather than sporadic basis. All criteria are derived directly from discussions about the experiences and practices of these actual academic departments, which are situated in a wide variety of institutional and disciplinary settings. Our goal was to develop "authentic" criteria that would take into account differences in context and make sense to faculty members in varied departments. Although we developed these criteria for research purposes, we believe they will be useful as well to academic administrators, department chairs, and faculty members as a tool for departmental self-study. It is in this spirit that we describe them in our article.

## *Project CLUE*

We developed the criteria and indicators to aid several of our analyses for Project CLUE, so it will be helpful to provide a brief sketch of our study before discussing them. The CLUE Project aims to identify and study academic departments employing program planning practices that emphasize ongoing improvement. While most studies of curricular change have spotlighted radical reforms or major innovations, we were interested in describing models of program development that demonstrate continuous reflection, reappraisal, and adjustment of the curriculum. This process may lead to either major or minor changes, or even to informed decisions to maintain the status quo. The emphasis, however, is on frequent information gathering and group discussions that may lead to especially responsive decision making and implementation.

The goal of Project CLUE is to explore exemplary departments' processes of curriculum decision making, including the challenges they face and the roles played by department chairs and other leaders. We also hope to learn how these departments build expertise in academic planning, how technology has influenced their program planning, and the extent to which they gather and use information in the curriculum-planning process. In addition, we intend to explore the relevant influences of institutional culture, departmental culture, and disciplinary culture. As we have begun analyzing the data, we have found that the departments in our study vary greatly in the extent to which their planning appears to be ongoing. We suspect some of the provosts may have nominated departments as especially attentive to curriculum planning because of a recent major revision rather than for truly continuous planning practices. Therefore, in order to investigate how continuous planning is associated with various other process and context variables, it has been necessary for us to develop criteria to group the departments by how continuously they plan. The criteria constitute a framework for looking at various aspects of departmental practice that may provide evidence of continuous program planning.

### *Project CLUE Sample*

Our continuous program planning criteria derive from analyses of Project CLUE data. To identify departments to include in the project, we used a two-stage sampling process. First we asked provosts at 253 randomly selected two- and four-year colleges and universities to nominate departments with at least seven full-time faculty members[1] that were "especially effective" in reviewing and planning their undergraduate curricula. We supplied eight possible, but optional, effectiveness indicators and invited provosts to contribute relevant others (see Table 1). Through these procedures, we developed a pool of 213 departments from 81 institutions that appeared to be especially attentive to curriculum planning.

TABLE 1

Optional Criteria for Provost Nominations of Departments for Project CLUE

The nominated department:

A. Gives frequent attention to appraising the curriculum for renewal and redirection.
B. Has identifiable curriculum leaders who encourage systematic appraisal.
C. Gathers and uses relevant information about program successes and failures in the planning process.
D. Implements curriculum plans in a timely and effective way.
E. Maintains a high level of faculty involvement in curriculum issues.
F. Is attuned to internal issues that may influence curriculum.
G. Is attuned to external issues that may influence curriculum.

NOTE: Space was also provided for provosts to indicate alternative criteria used for nominations.

In the second stage, we arrayed the nominated departments in a 28-cell matrix by institutional type and field of study (four Carnegie classifications by seven broad groups of pure and applied academic fields) and selected 50 departments for study. The applied field categories are those proposed by Stark (1998), who has suggested that the typical practice of lumping all professional preparation fields together is no more appropriate when studying influences on curriculum planning than failing to acknowledge at least some broad distinctions among the arts and science divisions.

Table 2 shows the distribution of the 44 departments for which we obtained usable interviews from the chair and at least one faculty member. The cell distributions represent our best effort to achieve a purposeful sample that would allow us to explore a wide variety of institutional and disciplinary contexts. We could not include all cells since some fields received no nominations or did not exist in some types of institutions. The science and math category is especially large because we received many nominations in math and computer science, perhaps due to calculus reform and to the introduction of new computer technology.

### *Data Collection*

Three researchers developed, refined, and field tested a semistructured interview protocol, then interviewed chairs and faculty members in the sample. The interviews covered a wide range of questions designed to elicit descriptions, attitudes, and attributions of influence about the contexts, department member roles, processes, and types of curricular decisions made at a group level within each department. In all, the study yielded 127 usable 60-to-90-minute interviews representing 44 department cases, including 44 interviews with department chairs and 83 with faculty members from those same departments.[2]

TABLE 2
Number of Departments Interviewed by Institutional and Discipline Type

| | Discipline Type | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Institutional Type | Humanities | Social Sciences | Sciences and Math | Enterprising Services | Human Services | Information Services | Artistic Services | Total |
| Research | 1 | 1 | 3 | 2 | 0 | 2 | 1 | 10 |
| Doctoral | 1 | 2 | 1 | 0 | 1 | 1 | 0 | 6 |
| Master's | 2 | 3 | 7 | 2 | 2 | 1 | 0 | 17 |
| Associate | 1 | 1 | 2 | 3 | 1 | 2 | 1 | 11 |
| Total | 5 | 7 | 13 | 7 | 4 | 6 | 2 | 44 |

SOURCE: *Carnegie Classification,* 1994 ed.

### *Development of the Four Criteria*

We initially analyzed interviews of 24 departments, seeking potential ways to define a continuous planning department. Each researcher listened to interviews with the chairpersons of 7 unique departments, one from each field-of-study category but within a single institutional type (Research and Doctoral, Master's, or Associate of Arts) and three departments in common, one from each institutional type. Based on the interviews, we each proposed general criteria for recognizing a continuous planning department. From overlapping lists, we selected three criteria we believed represented continuous effort to pursue responsive curriculum planning. We selected a fourth (participation and teamwork) because our own interest in Project CLUE is program planning by departmental groups rather than course planning by individual faculty members. The four broad criteria derived from the interviews are listed in Table 3.

### *Development of the Twenty Indicators*

For each of the four general criteria, we identified 5 indicators representing manifestations of the criterion that at least some of the department chairs and faculty members mentioned when they described their program planning practices to us (a total of 20 indicators). We then used a three-step process to determine the stability of the indicators for rating a department's level of continuous planning. First, two higher education doctoral students studying curriculum, but not involved in the study, independently rated the interviews of 6 department chairs, taped their extensive discussions about their ratings, and suggested wording changes

TABLE 3

Criteria for Continuous Planning Departments

1. Continuous and Frequent Curricular Planning Processes: A continuous planning department gives frequent attention to appraising the curriculum for renewal and redirection and engages in on-going planning efforts. It uses organizational structures and processes that facilitate curriculum planning as an on-going routine.
2. Awareness and Responsiveness: A continuous planning department is attuned to and responsive to internal and external factors that may influence curriculum and is proactive with respect to future influences.
3. Participation and Teamwork: A continuous planning department maintains a high level of faculty involvement in curriculum issues.
4. Use of Evaluation for Adaptive Change: A continuous planning department gathers and uses relevant information about program successes and failures in the curriculum development process.

in the indicators to eliminate ambiguity. Second, the three researchers revised the indicators based on this feedback, and then independently rated the same 6 interviews and 3 additional ones on a 5-point scale for each indicator (5 = strong positive evidence, 4 = some positive evidence, 3 = insufficient evidence, 2 = some negative evidence, 1 = strong negative evidence).[3] We used the qualitative data analysis program QSR NUD*IST Vivo 1.1 to identify and archive quotations from the interviews that informed the ratings. We then summed the ratings of all 20 indicators for each department, and rank ordered the departments by those total scores. Each of the researchers ranked the same three departments as falling within the top, middle, and bottom tiers based on the 20 indicators for continuous curriculum planning. Despite this congruence, we spent an entire "training" day discussing the differences and similarities in our ratings in an effort to improve consistency, to reduce conceptual overlap among the indicators, and to make the indicators more broadly applicable to ways of collecting data other than interviews. Third, as a final stability check, we used the revised indicators and what we had learned from our training discussion to independently rate an additional three full department cases (comprising nine interviews). Again, we arrived at a high degree of agreement in our ratings.

### *Description of the Criteria and Indicators*

The following sections offer a brief description and rationale for each criterion and indicator. Definitions for the criteria can be found in Table 3, and for the indicators in Tables 4–7.

#### *Criterion 1: Continuous and Frequent Curricular Planning Processes*

Table 4 shows the 5 indicators for the first criterion "continuous and frequent curricular planning processes." These indicators capture evidence that program planning is a frequent and ongoing activity in the department.

The first indicator (1.1) takes as evidence the fact that department members tell us—either directly or by example—that they discuss or otherwise engage in curriculum planning activities as a regular and routine feature of departmental life. The second indicator (1.2) highlights committees and leadership as identifiable elements of departmental administration that keep curriculum on the front burner and help those with curricular ideas to move them to fruition, or at least to a departmental decision. It is not the mere existence of leadership or committees within the department that matters when it comes to this indicator, how-

TABLE 4

Criterion 1. Continuous and Frequent Curricular Planning Processes

*A continuous planning department gives frequent attention to appraising the curriculum for renewal and redirection and engages in on-going planning efforts. It uses organizational structures and processes that facilitate curriculum planning as an on-going routine.*

Specific indicators:

1.1 The extent to which the chair and/or faculty members report on-going planning activities and discussions as regular practice.

1.2 The extent to which committees and leaders facilitate the flow of faculty suggestions and get them on the agenda for discussion.

1.3 The extent to which the department schedules "dedicated time" to discussing curriculum issues: department meetings, committee meetings, special retreats, course coordinating meetings.

1.4 The extent to which the chair and/or faculty members view curriculum planning as an on-going process of continuous improvement.

1.5 The extent to which the department has an articulated mission to guide its curriculum and clarifies the mission periodically.

ever, but whether they devote significant attention to curricular issues, and whether they clearly facilitate program planning efforts rather than hinder them. To be sure, curriculum committees are common in departments of all types, and most departments discuss curriculum at least when a pressing matter arises, but many curriculum committees meet only sporadically, and many departments make time for curricular discussions only on an ad hoc basis. Stark and colleagues (1997) found that program planning may be rare in the absence of a strong external catalyst or explicit internal leadership. The CLUE interviews support this conclusion, and therefore the inclusion of leadership (by individuals or committees) as a worthwhile avenue for gathering evidence of ongoing curriculum planning.

The third indicator (1.3), the extent to which departments routinely schedule specific occasions for curricular reflection and action, provides additional evidence that curriculum is, in fact, planned, and that curriculum planning is considered an important departmental responsibility. This indicator and several others focus on organized planning efforts, because our aim is to distinguish not only continuous from sporadic program development, but also curriculum renewal that is the result of planning from what some have called "random acts of improvement." This point is really the heart of what distinguishes our intended contribution to the scholarship on curriculum change from previous studies that focus on reform movements or major innovations and only recognize curriculum decisions as "successful" if they lead to dramatic changes that are "adopted" and "institutionalized." By focusing on routine practices, we hope to identify program planning approaches that are especially well informed, that respond to emerging needs and opportunities for incremental improvement, and that are sustainable despite very real limits on faculty time and stamina, both for meetings and for change itself.

The fourth indicator for the "continuous and frequent planning" criterion (1.4) is the extent to which department members view program planning to be an ongoing process of continuous improvement. In comparison to the first indicator's focus on reported planning behaviors, this indicator captures expressions of shared belief about how curriculum ought to be approached by the department. In the CLUE interviews, evidence for this indicator often arose as statements of educational philosophy or professional responsibility, particularly in response to a question we asked about what the department might tell a new faculty member about curriculum planning.

The fifth and final indicator for this criterion (1.5) is the extent to which a department shares an articulated mission to help guide its curricular decisions, and whether or not it periodically revisits that mission to decide if it is still appropriate. The existence of a mission statement, however, is insufficient as evidence of continuous program planning unless there is also evidence that the mission is a vital and adaptable agreement among departmental colleagues that has a real impact on curricular decisions. When department members readily paraphrase their mission as it relates to the curriculum, we are more convinced that the mission is meaningful as evidence of continuous planning than if they search their desktops to find a sheet of paper from which to read it. When faculty members and chairs point to the mission as an important influence on program planning without being asked, we are even more convinced. Again, we do not assume a mission is necessary for continuous planning, however, our interviews for Project CLUE indicate that departments that have clear curricular missions often view active, ongoing program planning as synonymous with carrying out that mission. Therefore, we have found departmental mission to be a criterion worth examining as a possible source of evidence for continuous program planning.

### *Criterion 2: Awareness and Responsiveness*

The second criterion for assessing continuous program planning is awareness and responsiveness to factors, both internal and external to the department, that are relevant to program-level curriculum decisions (see Table 5). In our interviews with faculty members and chairs of departments nominated as especially attentive to curriculum planning, we found that awareness and responsiveness tended to motivate consideration of potential changes to the curriculum more frequently than did reactions to external catalysts. This is the rationale for our first indicator (2.1), which asks whether recent curriculum discussions were self-initiated by the department (i.e., proactive or responsive) rather than the result of external pressure (i.e., reactive or resistant). Departments that actively look for opportunities to experiment and improve find those opportunities fairly frequently. In contrast, departments that take the attitude that "if it ain't broke, don't fix it," tend to discuss revisions as discrete efforts they either are doing, are planning, or are done with. From these departments we get the impression there is little or no discussion of the curriculum during periods between major revisions, in other words, curriculum revision is a time-limited project, not an ongoing departmental function.

The second indicator of awareness and responsiveness (2.2) is closely related to the first. This indicator is the extent to which the department has used mandated reviews and accrediting visits as opportunities for genuine self-study. Generally, departments have no choice in whether to participate in such reviews, but they do have a choice whether or not they try to learn something from the process that might benefit their curriculum. Since reviews and assessment requirements tend to recur in cycles, self-study efforts that go beyond pro forma compliance can be a form of ongoing attention to the curriculum. When departments fail to make the most of such opportunities for curricular review and renewal, issues of department leadership or culture may be at fault. Alternatively, the problem may be that the institution has failed to coordinate multiple

TABLE 5

Criterion 2. Awareness and Responsiveness

*A continuous planning department is attuned to and responsive to internal and external factors that may influence curriculum and is proactive with respect to future influences.*

Specific indicators:

2.1 The extent to which recent planning discussions are self-initiated by the department in response to needs or opportunities they identity (proactive or responsive) versus stimulated by pressure (reactive or resistant).

2.2 The extent to which faculty and/or chair have used university mandates, reviews, and accreditation visits as opportunities for self-study and planning.

2.3 The extent to which the department senses perceptions of faculty and students concerning program aspects, recent changes, and needs.

2.4 The extent to which the department senses the external environment, including changes in the discipline or field, and/or employer needs.

2.5 The extent to which the department develops linkages with other relevant departments or institutions.

reporting requirements, leading to a burdensome paper chase that leaves little time for meaningful reflection. Faculty members and chairs often told us that the information required by their institution or external evaluating body was not the type of information that the department itself found useful to inform its curricular decisions. Therefore, it may be inappropriate to interpret negative evidence on this indicator as proof that planning is not ongoing. Nonetheless, this indicator represents a potentially worthwhile area of information gathering for evidence of continuous planning, as well as for gauging some of the challenges facing departments that might wish to plan more continuously.

The third and fourth indicators of "awareness and responsiveness" (2.3, 2.4) concern internal and external environmental scanning. Some departments told us they talk with their students "all the time" about the curriculum and use student input to identify problems and opportunities for improvement. Frequent conversations between the curriculum committee chair and a group of adjunct instructors is another example of internal scanning. Some departments maintain relationships with businesses or other agencies that employ their graduates and use those relationships to keep in touch with external developments in occupations associated with their field of study. Sharing curriculum experiences with faculty members at other institutions through participation in disciplinary or professional associations is another example of external scanning we frequently heard about in our interviews.

The final indicator of "awareness and responsiveness" is the extent to which departments develop linkages with other relevant departments or institutions (2.5). Some departments hold a lunch meeting once or twice a year with other campus departments for whom they provide service courses. Some community college departments meet annually with faculty members of nearby universities to discuss curriculum articulation issues that affect their students. By their nature, some departments require or benefit from such linkages more than others, therefore it is important to take disciplinary and institutional contexts into account when considering this indicator. For instance, a large sociology department at a research university where sociology is a popular major may have fewer linkages than a sociology department in a master's granting institution that primarily provides service courses to programs such as criminal justice, nursing, and social work. Nonetheless, some sociology departments in either situation may develop more or fewer linkages than other departments in similar settings. One of the science/math departments in our study went out of its way to make extensive linkages with other academic departments and with co-curricular living-learning communities on campus. It was clear the faculty members and chair viewed these linkages as an expression of the department's commitment to curricular development.

### *Criterion 3: Participation and Teamwork*

The third criterion of continuous planning is "participation and teamwork" (see Table 6). While this criterion is a common element of TQM and CQI models, we did not assume it to be essential for program planning to be continuous. Indeed, as we stated earlier, Stark and others have found that the adjustments most faculty members continuously make to their individual courses do not require teamwork or departmental coordination (Stark, et al., 1997). The aim of Project CLUE, however, is to extend our knowledge of curriculum planning beyond the level of the individual faculty member and course to the level of the department and program. The "participation and teamwork" criterion clarifies whether curricular efforts described by faculty members and chairs are the result of departmental program planning or of individuals acting autonomously.

Some institutions achieve continuous program renewal through centralized planning that excludes department-level personnel from participation in curricular decisions. Examples of this model are some military and for-profit institutions that employ expert curriculum developers to create detailed materials for instructional staff to implement, as well as some technical programs at community colleges that are designed and closely controlled by state coordinating agencies. While this type of curriculum planning is worthy of further study, our interest in Project CLUE is to identify models of continuous program planning that are faculty driven, because in most departments the faculty does have

TABLE 6

Criterion 3. Participation and Teamwork

*A continuous planning department maintains a high level of faculty involvement in curriculum issues.*

*Specific indicators:*

3.1 The extent to which curriculum is considered "everybody's job," reflecting a strong sense of faculty responsibility and involvement.

3.2 The extent to which faculty members other than the chair are able to talk about curriculum planning for the program as a whole, or substantial program segments, rather than merely about their own courses.

3.3 The extent to which faculty ideas are welcomed and a culture of experimentation exists regarding the curriculum.

3.4 The extent to which participatory processes result in curriculum decisions.

3.5 The extent to which faculty collaborate in curriculum planning.

primary responsibility for program curricula and would prefer to keep it that way. The faculty members and chairs in our study asserted repeatedly that faculty members are the most qualified people to make curricular decisions because they are the most knowledgeable about their fields and their students.

The first indicator for "participation and teamwork" (3.1) is the extent to which curriculum is considered "everybody's job." This indicator helps distinguish departments with widespread participation in curriculum renewal from those in which curriculum is the work of only one or two faculty members with a particularly strong interest in it. In most of the departments we studied, there appear to be some faculty members who play more of a leadership role than others in initiating and following through on program-planning efforts. Nonetheless, the expectation that curriculum is everybody's job, when reported as a departmental norm, is a strong indicator that program planning is an ongoing departmental concern. The second indicator for "participation and teamwork" (3.2) is the extent to which faculty members other than the chair are able to talk about curriculum planning for the program as a whole. The faculty members we interviewed for Project CLUE seldom had difficulty providing a program-level perspective on curriculum. This was in marked contrast to earlier findings that faculty members often revert to talking about their own courses when asked about program planning (Stark, et al., 1997). In departments nominated for being especially attentive to program planning, the chair is not the only one who understands how the curriculum fits together and what the most pressing issues are. Where program planning is a vital departmental activity, all faculty members can describe how it is carried out through formal and informal processes.

The third indicator of "participation and teamwork" (3.3) is the extent to which faculty members' ideas are welcomed and a culture of experimentation exists regarding the curriculum. Most faculty members in the CLUE study told us they enjoy great freedom to pursue projects that excite them. More importantly, they said their chairs actively encourage new ideas, and their colleagues pitch in to help them develop curricular proposals. CLUE participants often told us they encourage new faculty members to bring ideas to the group. It is important to gain the group's consent, but equally importantly the group provides useful feedback to improve the proposal and to get it through the institution's curriculum approval process. Faculty members in CLUE departments also report freedom to run experiments with new curricular topics and instructional approaches. In fact, a number of faculty members described curricular experiments they had carried out that had required extensive cooperation from other faculty members in the department. In some departments experiments are quite common, and their outcomes are carefully monitored and discussed as part of the curriculum-planning process. The culture of a continuous planning department goes beyond mutual toleration of each other's pet projects to include valuing new ideas as a departmental asset.

The fourth indicator of "participation and teamwork" (3.4) is the extent to which participatory processes result in curricular decisions. The unique contribution of this indicator is that it differentiates between program-planning processes that result in decisions and those that do not. Departments abound that debate issues continuously without ever making a decision. Continuous planning should not be confused with continuous debate. Faculty members in continuous planning departments report that they occasionally have long debates but usually do not, because they gather enough information ahead of time to address anticipated questions. Faculty members in the CLUE study seldom spoke disparagingly of their department's curriculum planning process. Continuous planning departments avoid burnout on curricular discussion by bringing issues to closure in an efficient manner.

The final indicator of "participation and teamwork" is the extent of faculty collaboration in curriculum planning (3.5). Collaboration is another indicator that faculty members are thinking about the curriculum beyond the level of their own courses. Faculty members may collaborate on formal proposals, but this indicator helps identify informal planning activities as well, such as meeting over lunch to discuss pedagogical techniques. Among the CLUE departments, we found a wide variety of curricular collaborations. Often collaboration takes place in course teams (such as the precalculus faculty in a large mathematics department), in cohort teams (such as the first-year faculty in a nursing program), or among faculty members who represent a specialty within the department (such as the Americanists in a history department). At other times faculty members reach across subgroup boundaries to better integrate their program into a coherent whole. Examples of curricular collaboration include selecting a textbook for an introductory course, forming a seminar to develop a new cluster sequence, and sharing ideas for using technology in the classroom. Collecting examples of curricular collaboration may be especially helpful to departments that want to become more continuous program planners.

### *Criterion 4: Use of Evaluation for Adaptive Change*

Our fourth criterion is the "use of evaluation for adaptive change" (see Table 7). This criterion is another that is common to TQM and CQI models, which assume that ongoing evaluation drives continuous improvement. Project CLUE interviews suggest that data collection and evaluation can be a vital part of ongoing program planning. In our interviews, use of evaluation distinguished between departments that innovate frequently without regard to documented needs or outcomes, and those that make curricular decisions clearly grounded in relevant information about potential benefits for students. When departments fail to bring evaluation into the process, program planning tends to be motivated disproportionately by what excites individual faculty members. In such cases, assumptions about what students want or need are tested only through their subsequent enrollments. While evaluation has its limitations, it is more encompassing than waiting for students to "vote with their feet."

Our first indicator for "use of evaluation" (4.1) is the extent to which program evaluation procedures are formally organized and implemented. Data collection need not be formally organized to be continuous, but when faculty members described formal systems of data collection to us, they tended to be ongoing.[4] Common examples of formal evaluation are annual surveys of students or alumni, exit interviews with graduating seniors, annual review of student achievement, and faculty evaluation scores in core courses.

The second indicator for the "evaluation" criterion (4.2) is the extent to which curriculum decisions are based on relevant information gathered about program successes and failures. This indicator provides evidence that program planning is genuinely responsive to stakeholders,

TABLE 7

Criterion 4. Use of Evaluation for Adaptive Change

*A continuous planning department gathers and uses relevant information about program successes and failures in the curriculum development process.*

Specific indicators:

4.1 The extent to which program evaluation procedures are formally organized and implemented.

4.2 The extent to which curriculum decisions are based on relevant information gathered about program successes and failures.

4.3 The extent to which information about program successes/failures collected to assist in curriculum decisions includes data from a variety of sources within the program, from varied points in time and from varied perspectives.

4.4 The extent to which information about program successes/failures collected to assist in curriculum decisions includes data from a variety of sources external to the program, from varied points in time and from varied perspectives.

4.5 The extent to which the department critically examines curriculum trends in other programs before adapting, adopting, or rejecting them.

but it also provides a check against counting data collection as a program-planning activity when it is actually disconnected from the department's curriculum decision-making processes. Wergin's (1999) finding that departments collect much data without using it is an important warning in this regard, and proved prophetic even for our sample of departments that were nominated for being especially active in program planning. Some departments in our study routinely discussed the data they collected, but others reported that they did not. Likewise, when a new curricular issue arose, not all departments gathered information on which to base their decisions. A few faculty members and department chairs in our sample were unable to provide any examples either of data collection or of decisions made on the basis of information. Many expressed dissatisfaction or even embarrassment at their perceived weakness in evaluation. This finding suggests that departments that are especially attentive to curriculum planning may be in transition toward higher levels of data collection and use. That is to say, faculty members and chairs in the CLUE sample viewed evaluation as an important component of good planning practices, but few expressed comfort in their current level of evaluation expertise.

The third and fourth indicators of "evaluation" (4.3, 4.4) are the extent to which information to assist curricular decisions is collected from a variety of internal and external sources, respectively, and from varied points in time and varied perspectives. When departments described a wide variety of data collection activities to us, our research team felt more convinced that their program planning was ongoing. However, we quickly discovered that it was necessary to follow up each question about a particular type of data with a question about its use. A good example of curriculum data that most departments said they collected is course evaluation data. Yet most, when probed, admitted that these data were used only by individual faculty members to improve their own courses, or by the department chair for faculty performance reviews.[5] A few departments discussed course evaluation data as a group for the purpose of program planning, but not many.

Some examples of internal data that continuous planning departments often collect and use are enrollment trends, student satisfaction measures, and comparisons of grades in one course or section with grades in a subsequent course in the major. Some examples of external data that continuous planning departments often use are employer surveys, government data on occupational trends, and scores on graduate placement and professional licensure examinations.

The last indicator of "evaluation" (4.5) is the extent to which departments critically examine curricular trends in other programs before adapting, adopting, or rejecting them. It is common for departments to look to peers for curricular ideas. In fact, one of the more common types of external data the CLUE departments reported was information they collected from the World Wide Web or conferences about what peer programs were doing. However, many stressed that their department seldom "jumps on the bandwagon" of popular curricular trends. A number described their departments as "ahead of the curve, but not exactly on the cutting edge." In fields that had experienced widespread movements to adopt particular innovations, such as "reform calculus" in the field of mathematics, departments that had not chosen to adopted the reform often told us they had nonetheless spent considerable time researching and evaluating the proposed change before rejecting it.

### *First Application of the Indicators*

Following development and stability testing, the first author employed the indicators for the first time by applying them systematically to all 127 CLUE interview transcripts to score the 44 departments on each indicator. First, she coded the interviews to mark all passages that appeared to provide any direct or even contextual evidence that might inform the scoring of an indicator. Next, she reviewed the passages from interviews with all members of the same department to arrive at a single departmental score for the indicator on the 5-point scale described above (5 = strong positive evidence, 4 = some positive evidence, 3 = insufficient evidence, 2 = some negative evidence, 1 = strong negative evidence).

Using this generous 5-point scoring method, a department with no confirmatory or disconfirmatory evidence for any of the twenty indicators would receive a composite score of 60 out of a possible 100 points. A department with some negative evidence could receive less than 60 points; one with some positive evidence more than 60 points. The departments are arranged in rank order of their composite scores in Table 8. Composite scores for the CLUE departments ranged from 50 to 95 points, with a mean of 78.5. Only 3 departments out of 44 received continuous program planning scores of 60 points or below, which is consistent with our sample of departments that were nominated as especially active in their program-planning efforts. In subsequent analyses, the first author compared the departments that scored in the top quartile on the combined indicators to those in the bottom quartile and found substantial differences in the types of practices identified in the interview transcripts. Compared to departments in the bottom quartile for continuous program planning, those in the top quartile were more likely to:

- consider a wide array of curricular issues in their planning process;
- make an ongoing effort to increase departmental expertise in curricular matters;
- behave as a curriculum discourse community within the department;
- participate in curriculum related discourse communities beyond the department.

Table 9 shows the mean scores of the 44 departments for each criterion and indicator score.[6] Mean scores above 3 indicate a preponderance of explicit positive evidence based on the indicator. Mean scores below 3 indicate a preponderance of explicit negative evidence based on the indicator. Scores were highest for the first two criteria, "Continuous and Frequent Curricular Planning Processes" and "Awareness and Responsiveness," which seem to exhibit greatest face validity for the concept of continuousness in planning. The highest scores on indicators of these criteria were for departmental self-initiative (Indicator 2.1) and external scanning (Indicator 2.4). This finding, coupled with the low mean score for using mandates as genuine self-study opportunities (Indicator 2.2), suggests that departments that are not fully responsive to external mandates may, nonetheless, be proactive in curriculum planning through responsiveness to stakeholders they deem most important.

While the indicator scores on the fourth criterion, "Evaluation for Adaptive Change," were somewhat lower on average, they also reflect fairly strong departmental interest in using external sources of input in curriculum planning. One would expect a positive relationship between external sensing (Indicator 2.4) and use of external data (Indicator 4.4), but the lower score for the use of data suggests that evidence of external scanning was not always accompanied by evidence that the department sought external information about its successes and failures from a variety of sources, varied points in time, and varied perspectives. This discrepancy may suggest the need or potential for more varied external data collection, or it may simply reflect disciplinary and institutional differences in the number of relevant external sources.

The lowest mean score was for evidence that departments considered curriculum to be everybody's job (Indicator 3.1). Indeed this was the only indicator for which, on average, we found little explicit positive evidence among the CLUE departments. Possibly, this indicator may not be a necessary or important component of continuous program planning. In contrast, the other indicators for the third criterion, "Participation and Teamwork," received affirmative scores, particularly Indicator 3.3, indicating a culture that welcomes ideas and experimentation, and Indicator 3.5, faculty collaboration in curriculum planning. We noted that the

TABLE 8

Department Composite Scores for Continuous Program Planning

| Department | Score | Institution Type* | Field of Instruction | Department | Score | Institution Type | Field of Instruction |
|---|---|---|---|---|---|---|---|
| Case 29 | 95 | A | Business Administration | Case 46 | 81 | D | Biological Systems Engineering |
| Case 01 | 94 | A | Fine Arts | Case 04 | 79 | M | Chemistry |
| Case 28 | 93 | M | Nursing | Case 17 | 79 | M | Biology |
| Case 32 | 92 | R | Math & Computer Science | Case 33 | 79 | A | Engineering Technologies |
| Case 22 | 91 | A | Nursing | Case 42 | 79 | R | Mathematics-Calculus program |
| Case 30 | 91 | M | English | Case 34 | 77 | M | Sociology/ Anthropology |
| Case 03 | 88 | D | Nursing | Case 18 | 75 | M | Mathematics |
| Case 19 | 87 | R | Curriculum & Instruction | Case 45 | 75 | R | Accounting & Information Systems |
| Case 35 | 87 | M | Nursing | Case 14 | 74 | M | Chemistry |
| Case 40 | 87 | M | Chemistry | Case 21 | 73 | R | Microbiology |
| Case 16 | 85 | M | Industrial Technology | Case 41 | 73 | M | Geography, Political Science, and Sociology |
| Case 07 | 84 | D | Communication | Case 44 | 73 | A | Electronics & Electronics Engineering |
| Case 11 | 84 | D | Math & Computer Science | Case 15 | 72 | M | Psychology |
| Case 25 | 84 | A | Biology | Case 12 | 71 | D | Sociology/ Anthropology |
| Case 05 | 83 | M | Applied Engineering & Technology | Case 13 | 68 | M | Biology |
| Case 06 | 83 | M | Communication Studies | Case 38 | 67 | R | Communication |
| Case 24 | 82 | A | Math & Computer Science | Case 39 | 67 | R | Sociology |
| Case 31 | 82 | M | Math & Computer Science | Case 20 | 66 | R | Art |
| Case 02 | 81 | A | Humanities/English | Case 36 | 64 | R | History |
| Case 23 | 81 | A | Communications Media | Case 10 | 59 | D | Psychology |
| Case 26 | 81 | A | Communications/ Humanities | Case 09 | 58 | D | English |
| Case 27 | 81 | A | Social/Behavioral Sciences | Case 43 | 50 | M | English |

*R = Research, D = Doctoral, M = Master's, A = Associate of Arts

TABLE 9

Continuous Curriculum Planning Criteria and Indicators Mean Scores

| Criteria and Indicators | Mean Score | |
|---|---|---|
| Continuous and Frequent Curricular Planning Processes | | 4.07 |
| 1.1 Direct reports of ongoing curriculum planning processes | 4.18 | |
| 1.2 Committees and leaders facilitate flow of suggestions to agenda | 4.11 | |
| 1.3 Dedicated time for discussing curricular issues | 3.98 | |
| 1.4 View curriculum planning as ongoing process | 3.93 | |
| 1.5 Department has articulated mission, reviews it periodically | 4.16 | |
| Awareness and Responsiveness | | 4.13 |
| 2.1 Recent planning self-initiated, proactive, responsive, not resistant | 4.25 | |
| 2.2 Mandates, reviews, accreditation used for genuine self-study | 3.89 | |
| 2.3 Internal sensing of faculty and student perceptions | 4.20 | |
| 2.4 External sensing of environment | 4.27 | |
| 2.5 Develops linkages with other relevant departments and institutions | 4.02 | |
| Participation and Teamwork | | 3.64 |
| 3.1 Curriculum considered everybody's job | 2.66 | |
| 3.2 Faculty other than chair can discuss curriculum as whole | 3.68 | |
| 3.3 Ideas welcome and culture of experimentation | 4.18 | |
| 3.4 Participatory processes result in decisions | 3.55 | |
| 3.5 Faculty collaborate in curriculum planning | 4.14 | |
| Use of Evaluation for Adaptive Change | | 3.86 |
| 4.1 Program evaluation procedures are formally organized | 3.93 | |
| 4.2 Curriculum decisions are based on relevant information gathered | 3.75 | |
| 4.3 Internal data used in decision making is varied | 3.75 | |
| 4.4 External data used in decisions making is varied | 3.98 | |
| 4.5 Critical examination of trends before adapting, adopting, rejecting | 3.91 | |
| Mean for all indicators | | 3.93 |

NOTE: Departments were rated on each indicator on a 5-point scale: 5 = strong positive evidence, 4 = some positive evidence, 3 = insufficient evidence, 2 = some negative evidence, 1 = strong negative evidence

three departments receiving the top composite scores for continuous program planning all received the highest score (5) for strong evidence that "curriculum is considered everybody's job." Yet, other departments that scored high on most other aspects of continuous program planning described extensive curricular collaboration in an atmosphere that encouraged such activities but allowed a few department members the prerogative to opt out. Possibly the absence of extremely disinterested, or even disruptive, faculty members can facilitate curriculum planning in some cases. Further research is needed to determine if unanimous participation in curriculum planning is associated with more continuous (or effective) program planning than is widespread participation, or if continuous planning departments simply vary in their need for faculty coordination and input.

Although most indicators were relatively easy to score for the CLUE interviews, several of the indicators caused some difficulty. For example, Indicator 1.2 highlights the role of leaders and committees by asking if they "facilitate the flow of *faculty* suggestions and get them on the agenda for discussion" (emphasis added). In scoring this indicator, evidence frequently arose of department chairs or curriculum committees that spurred curricular discussion by initiating their own proposals, as well as, or instead of, only facilitating those of colleagues. For the purpose of scoring the CLUE departments, only evidence for the original wording of Indicator 1.2 was considered, however a broader definition or the addition of another indicator might be useful.

The terms "internal" and "external" as descriptors of the scanning process and data origin (Indicators 2.3, 2.4, 4.3, 4.4) proved problematic as well. The problem is not so much the question of what defines the boundary between internal and external sensing or decision making, but rather that those boundaries legitimately differ from one department to another depending on disciplinary type, departmental mission, linkages, and various other factors. As with so many measures in higher education, context helps determine what is good practice.

The most problematic indicator to score for the CLUE departments was "the extent to which participatory processes result in decisions" (3.4). We developed this indicator from interview statements that indicated curriculum planning can bog down if discussion is permitted to continue indefinitely or if a few individuals are allowed to stall the process. However, it is very difficult for an outsider to judge from interview data how well a department functions as a decision-making body unless participants explicitly state whether debate frequently or seldom bogs down. Within collegial groups the length and emotional intensity of debate that can be deemed constructive varies tremendously. This particular indicator is surely meaningful in the assessment of continuous program planning, however its validity for general use probably will require a different approach to data collection than we used in Project CLUE.

## *Discussion*

From analysis of the Project CLUE interviews, we have come to believe that continuous planning is a useful concept for academic programs. We have also identified a good number of "indigenous" examples that other departments can learn from distributed among a wide variety of disciplinary and institutional settings. In the preceding pages we have described a set of criteria and indicators that we offer as a framework for assessing continuous program planning in academic departments. These indicators of continuous program planning should have authenticity because they were derived from actual statements of department chairs and faculty members. They should have trustworthiness because of the variety of academic planning contexts included in the Project CLUE sample and because of the rigor of our process for developing them.

As researchers we have begun to use these criteria and indicators to identify multiple models of continuous program planning and to explore how matters of context, leadership, collaboration, and curriculum expertise relate to curriculum planning at the program level. We encourage others to test their usefulness in research, and adapt them where necessary. While we cannot prejudge the optimal weight that should be given to each criterion and indicator for any particular type of department, we do believe the criteria can be used, as we are currently doing, to compare and contrast departmental practices in order to learn more about internal and external influences on program planning.

In addition, we believe these criteria and indicators can be useful to departments for self-study and to suggest avenues for development of more responsive program-planning practices. At the beginning of our study, we encouraged provosts to nominate up to six departments from their campuses, but few nominated more than two or three. A significant number declined to make any nominations because they said they had no departments that attend to program planning particularly often. If this is true (and not just a lack of awareness on the part of provosts), the academic department, as an institutional unit, may hold considerable untapped potential for curricular improvement. It is our impression that many departments are looking for ways to improve their undergraduate programs. However, most have lacked a way to think and talk about curriculum planning at the program level except in terms of sporadic overhauls that exhaust most participants and make them reluctant to discuss program planning for a number of years to come. The continuous search for incremental improvements need not stand in the way of transformational changes when they are called for. However, too keen a focus on dramatic change can cause many smaller problems and opportunities to go unnoticed until only dramatic measures will suffice. We hope this article spurs other higher education researchers and departmental faculty to explore models of program planning that are more continuous than traditional practices and therefore more responsive and sustainable as well.

### *Limitations and Future Research*

We developed these criteria to rate a particular set of research interviews, and only application to other data will confirm their generalizability. We have identified indicators we believe apply to most departments in which the faculty holds primary responsibility for the curriculum. However, some indicators may be easier to observe in larger, more complex departments where curriculum planning structures and practices tend to be more formally organized. Others may be more obvious in smaller departments where informal, collegial processes predominate. The first author has used the indicators to code passages in the full set of 127 interview transcripts in preparation for rating the 44 departments according to their level of continuous program planning. For the purpose of placing the departments into broad groupings representing high, medium, and low levels of continuous program planning, we are confident the criteria work well, however we do not believe finer grained comparisons would be an appropriate use of the criteria and indicators.

The indicators would benefit from testing with more departments to further assess their stability, and from direct feedback from faculty members, chairs, and academic administrators to determine if, indeed, they are understandable and meaningful to the practitioners whose activities and beliefs they describe. More importantly, if the criteria and indicators do prove stable and appear valid, we then must determine their relevance to the lives of students. Does continuous program planning lead to better educational experiences for students? We do not know. But by making it possible to capture variation in a sample of departments, the indicators should enable us to correlate planning patterns with various educational outcomes. Thus it may be possible to determine if continuous program planning truly benefits students by "adding value" over sporadic program planning, or whether continuous planning by the department as a group has benefits over the frequent adjustments that individual faculty members make to their individual courses.

## *Notes*

[1] We focused our study on departments with at least seven full-time faculty members to make it easier to study curriculum leadership and collaborative planning processes, which, we conjectured, might be more idiosyncratic in smaller departments.

[2] Our intention was to interview two faculty members from each department.

[3] We developed this scale to judge the evidence for the following reason. Because our research team developed the indicators inductively from the interview data, we had not—and could not have—designed the interview protocol to assess all of the indicators equally well, and some we had not directly addressed at all. Consequently, for this initial group of departments, the amount and quality of the evidence for each indicator varied and was sometimes insufficient for determining a score. Therefore, a scale to gauge the strength and direction of evidence that accorded the benefit of the middle score (3 points) to departments without clear evidence for the presence or absence of an indicator seemed appropriate for this initial scoring task. As these indicators are more fully validated in further research, researchers using interviews or surveys obviously would in-

clude questions to tap each indicator. In other situations, such as a departmental self-study, researchers or evaluators might take a different approach to gathering data and scoring the indicators.

[4] Formalized data collection processes that are the result of a department coming under extraordinary institutional scrutiny are not what we intend to capture with this indicator, since they do not reflect ongoing attention to the curriculum.

[5] Only the rare department connects its faculty review process with its program planning in any systematic way, but there were one or two examples of this practice in our sample.

[6] A table showing all 880 individual departmental scores for each indicator is available from the first author.

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# How Undergraduate Loan Debt Affects Application and Enrollment in Graduate or First Professional School

In 1989, Senator Claiborne Pell, Chairman of the Labor and Human Resources Subcommittee on Education, Arts and the Humanities and the person for whom the Pell Grant program is named, voiced his concern that students who successfully completed college were overburdened by large debts. Senator Pell felt that college students were at risk of becoming a "new class of indentured servants" whose career choices and personal lives were being distorted by the significant loan debt they had acquired to get an education (Kosterlitz, 1989, p. 921). Senator Pell's sentiment reflects the prevailing national policy of attempting to ensure that the financial aid college students receive does not become such a burden that it constrains their options when they graduate.

Despite the sentiment of national policymakers, a growing number of students are accumulating larger debts in pursuit of their bachelor's degrees, and the rate of increase in loan amounts is more than three times the rate of inflation. Table 1 shows that 31.4% more 4th and 5th year seniors attending public colleges and universities relied upon loans to cover their college expenses in 1995–96 than in 1989–90, increasing

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from 38.5% to 50.6%. The corresponding change at private institutions was 16.9% from 47.2% to 55.2%. Over the same time the increase in the average cumulative amount borrowed was approximately 87.7% for 4th or 5th year seniors at public 4-year institutions from $5,848 to $10,976, and 73.3% at private 4-year institutions from $7,551 to $13,086 (U.S. Department of Education. National Center for Education, 2000b).

Recent publications such as *College Debt and the American Family, Student Loan Debt: Problems and Prospects, Life After Debt: Results of the National Student Loan Survey,* and *Condemning Students to Debt* are evidence that Senator Pell is one among many who are concerned about the influence of undergraduate financial indebtedness upon students' post collegiate choices (The Education Resources Institute & The Institute for Higher Education Policy, 1995, The Institute for Higher Education Policy, Sallie Mae Education Institute and The Education Resources Institute, 1988, Fossey & Batement, 1998). Typically, concern has been voiced about how undergraduate debt impedes student borrowers from buying cars, buying a home, having children, or moving out of their parents' home after graduating (The Education Resources Institute & The Institute for Higher Education Policy, 1995; Baum & Saunders, 1998).

Understanding the consequences of such instruments of public policy as undergraduate educational loans and debt accumulation upon graduate school participation is yet another important indicator for informing policymakers about changes that may be necessary to address unintended negative outcomes of current financial aid policies. In this context, the question is whether undergraduate debt acts as an impediment to student access to graduate school and to the production of a trained doctoral workforce. Concern about the nation's ability to maintain a trained doctoral workforce was raised at the end of the 1990s by the Council of Graduate Schools. Syverson (2000) observed that "while the number of doctorates granted by U.S. universities reached an all-time high of 42,683 in 1998, the annual rate of increase has fallen from 4% in the early 1990s to well less than 1% in the last year" (Syverson, 2000, p. 8). Manski and Wise (1983) stated that "whatever purposes federally sponsored aid should serve, policy evaluation is facilitated by knowledge of the impact that existing programs have" (Manski & Wise, 1983, p. 118). While the federal student loan programs were not specifically designed for the purpose of easing student transition from undergraduate to graduate school, they were certainly not intended to be impediments; therefore, it is important to evaluate their unintended consequences and influences upon students who seek to pursue graduate and first professional degree programs.

Around 20% of the 1.1 million 1992–93 bachelor's degree recipients

TABLE 1

Percentage of All Undergraduates by Undergraduate Class Level Attending in 1989–90, 1992–93, And 1995–96 Who Had Ever Received Federal Stafford Loans or Supplemental Loans to Students (SLS), and the Average Cumulative Amount Borrowed: Public and Private 4-Year Institutions

| | 1989–90 | | 1992–93 | | 1995–96 | | % Change in Percent Who Borrowed | | | % Change in Amount Borrowed | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | % who ever borrowed | Average cumulative amount | % who ever borrowed | Average cumulative amount | % who ever borrowed | Average cumulative amount | 89–90 to 92–93 | 89–90 to 95–96 | 92–93 to 95–96 | 89–90 to 92–93 | 89–90 to 95–96 | 92–93 to 95–96 |
| *Public 4-year Institutions* | | | | | | | | | | | | |
| 1st year | 18.2 | $2,473 | 24.5 | $2,858 | 39.5 | $3,386 | 34.6% | 117.0% | 61.2% | 15.6% | 36.9% | 18.5% |
| 2nd year | 26.3 | $3,531 | 30.8 | $3,910 | 42.0 | $5,546 | 17.1% | 59.7% | 36.4% | 10.7% | 57.1% | 41.8% |
| 3rd year | 30.3 | $4,366 | 34.2 | $5,237 | 47.6 | $8,146 | 12.9% | 57.1% | 39.2% | 19.9% | 86.6% | 55.5% |
| 4th or 5th year | 38.5 | $5,848 | 38.4 | $6,994 | 50.6 | $10,976 | –0.3% | 31.4% | 31.8% | 19.6% | 87.7% | 56.9% |
| *Private 4-year Institutions* | | | | | | | | | | | | |
| 1st year | 28.5 | $2,672 | 35.5 | $2,981 | 48.0 | $3,677 | 24.6% | 68.4% | 35.2% | 11.6% | 37.6% | 23.3% |
| 2nd year | 40.6 | $4,273 | 39.5 | $4,700 | 51.0 | $6,610 | –2.7% | 25.6% | 29.1% | 10.0% | 54.7% | 40.6% |
| 3rd year | 43.7 | $5,792 | 45.7 | $6,307 | 56.3 | $9,803 | 4.6% | 28.8% | 23.2% | 8.9% | 69.3% | 55.4% |
| 4th or 5th year | 47.2 | $7,551 | 46.7 | $9,013 | 55.2 | $13,086 | –1.1% | 16.9% | 18.2% | 19.4% | 73.3% | 45.2% |

SOURCE: Trends in Undergraduate Borrowing: Federal Student Loans in 1989–90, 1992–93, and 1995–96 (NCES Report 2000–151) stated that they expected to earn a doctoral degree.[1] But, there appears to be a large gap between the number who expected to attain a doctoral degree and the number who actually pursued either a graduate (master's or doctoral) or first professional degree within a year of receiving their bachelor's degree. During the year immediately after receiving their baccalaureate degrees, only 5% of those who aspired to pursue a doctoral degree enrolled in a doctoral degree program, while 21% enrolled in a master's degree program, 4% enrolled in a first professional degree program, and 70% did not enroll in a graduate or first professional degree program.

The rather large gap between the high degree expectations of recent bachelor's degree recipients and their low rate of enrolling in graduate school raises questions about how accessible graduate education is to recent U.S. college graduates. It also raises questions about the role that undergraduate debt and other factors play as potential impediments to immediate entry to graduate or first professional school. Given the increasing reliance upon debt, is graduate school really an immediate option for all who aspire to earn a doctoral degree? Aside from knowing the size of the eligible pool of students for graduate admissions and the number of people who enter graduate programs, very little is known about the access that students have to graduate and first professional school. Little is known for example, about the characteristics or the circumstances that distinguish aspirants for the doctoral degree who enroll immediately in graduate or first professional degree programs from those who do not. One circumstance that may deter some students from applying or enrolling in graduate or professional school is having undergraduate debt. The amount of debt may also be a deterrent for some recent college graduates.

### *Literature Review on the Effect of Undergraduate Debt on the Transition to Graduate School*

Several prominent researchers (Ethington & Smart, 1986; Hearn, 1987; Isaac, Malaney, & Karras, 1992; Malaney & Isaac, 1988) in the 1980s and 1990s excluded the influence of undergraduate debt in their examination of student transitions from college to graduate school. Other scholars (Consortium on Financing Higher Education, 1983, 1988, 1996; Ekstrom, Goertz, Pollack & Rock, 1991; Fox, 1992; Murphy, 1994; Nettles, 1989; Sanford, 1980, Schapiro, O'Malley & Litten, 1991; Tsapogas & Cahalan, 1996; Weiler, 1991, 1994; Wilder & Baydar, 1991) have examined the role of debt in the transition to graduate school, and taken together, they are equivocal about the role that debt plays in students' decisions to enroll in graduate school.

One group (Baum & Saunders, 1998; Baum & Schwartz, 1988; Consortium on Financing Higher Education, 1983, 1988, 1996; Ekstrom, Goertz, Pollack, & Rock, 1991; Nettles, 1989; Schapiro, O'Malley, & Litten, 1991; Weiler, 1991, 1994) concluded that debt was not a significant factor in students' decisions to enter graduate school. In his study of graduate students at Florida State University, Rutgers University, Ohio State University, and the University of Maryland at College Park, Nettles (1989) examined the variation in entry-level debt burdens among Whites, Hispanics, and African Americans who enrolled in doctoral programs. He reported that 46% of African Americans and 43% of Hispanics compared to 36% of Whites had taken out loans to finance their undergraduate education. Nettles reported that students who took more time off had relatively lower undergraduate debt, but debt did not appear to have a significant relationship to their decision to enter graduate school immediately after graduating from college.

In a review of the National Longitudinal Study of 1972 and High School and Beyond (HS&B), Ekstrom, Goertz, Pollack, and Rock (1991) found that undergraduate debt did not significantly affect the propensity of students to apply to or enroll in graduate school. Defining debt of $10,000 or higher in 1982 and 1984, and $12,500 or higher in 1989 as "high debt," Schapiro, O'Malley, & Litten (1991) reported that undergraduate debt influenced neither positively nor negatively student intentions to enroll in graduate school in the arts and sciences for graduates of colleges and universities that were members of the Consortium on Financing Higher Education (COFHE).[2] Using HS&B, Weiler (1991) found that debt (measured as the sum of the amount borrowed for each year) did not deter students from attending postbaccalaureate degree programs. In another study that examined HS&B, Weiler (1994) found that while the expectation to attend graduate school decreases as the expected amount borrowed increases, the amount borrowed did not have a statistically significant affect on postbaccalaureate attendance. The 1983 COFHE study of 1982 seniors by level of loan debt failed to detect a clear pattern of difference in the consideration of attending graduate school or graduate school attendance. Approximately 15% of students with no loan debt and 15% of students with $10,000 or more of debt entered graduate school in the fall. For those 1982 graduating seniors who planned to delay entry into graduate school, the two primary reasons they reported for their decision to delay were the need for non-academic experiences for personal development (65%), and the need to improve their personal finances (46%). Having very high current educational debts was reported by only 17% of the cases as a reason for delaying their graduate school attendance.

The 1987 COFHE follow-up study found that undergraduate debt did not prevent the attainment of further education for 1982 seniors who delayed entry into graduate school, did not lead COFHE seniors to abandon their educational aspirations, or their arts and science degree goals in favor of professional fields. In 1996 COFHE also found that student decisions to attend graduate or first professional school were not deterred by the amount of their debt.

In a study of 2,000 borrowers under the Massachusetts Guaranteed Student Loan Program, Baum and Schwartz (1988) found that 35% of the people who decided not to go to graduate school said that concern over borrowing was "very or extremely important" in their decision. In a later follow-up study, the 1997 National Student Loan Survey (NASLS), Baum and Saunders (1998) reported that 43% of cases who did not go to graduate school cited the level of their undergraduate debt as extremely or very important in preventing them from going to graduate school, while 28% reported undergraduate debt being unimportant. Baum and Saunders did not find significant differences by race on the influence of student loans.

A second group of researchers (Fox, 1992; Tsapogas & Cahalan, 1996; Wilder & Baydar, 1991) found debt to have a significant negative influence on student transition to graduate school. Analyzing a sample of cases who took the Graduate Record Examination (GRE) in 1986–87, Wilder and Baydar (1991) found that undergraduate debt was a modest deterrent to people applying to graduate school, but not for being accepted or enrolling. Using the Survey of 1985–86 College Graduates, Fox (1992) reported that undergraduate debt had a modest negative effect upon enrollment in graduate school for his overall sample and for a subsample of women, but was not significant for the subsample of men. In an analysis of the 1993 National Science Foundation's National Survey of Recent College Graduates (NSRCG), Tsapogas and Cahalan (1996) found that having undergraduate loan debt had a significant negative effect on the likelihood of attaining a degree or enrolling full-time in graduate school, while the amount of debt had an extremely small negative effect. Their separate analyses of men and women uncovered a negative relationship that having undergraduate debt had upon males only.

A third group of researchers (Murphy, 1994; Sanford, 1980) found debt to have a positive affect upon the transition to graduate school. In an analysis of NLS-72, Sanford (1980) learned that when only the effects of loans on graduate school attendance is considered, college graduates with debt, regardless of the amount, were more likely to attend graduate or first professional school than college graduates who did not have loans. Using HS&B, Murphy (1994) found that undergraduate debt had a minimally positive influence upon students' plans to pursue doctoral level graduate work.

While researchers over the past 16 years have contributed to our knowledge of the influence of financial indebtedness on the transition, they have not reached a consensus on its relationship to graduate school attendance. It is important to acknowledge the limitations of this collection of work. The literature projects an ambiguous image of the role of indebtedness. For some (Fox, 1992; Tsapogas & Cahalan, 1996; Wilder & Baydar, 1991) debt was found to be an impediment; for others (Murphy, 1994; Sanford, 1980) it was not found to be an impediment; still others (Ekstrom et al., 1991; Nettles, 1989; Schapiro et al., 1991; Weiler, 1991, 1994) found it had no effect.

How can researchers be so inconsistent in their findings? The answer is found in the data they are analyzing and their research methods. The limitations of the extant research are based on the analysis of samples that do not represent the larger population of students who are making the transition to graduate school (Consortium on Financing Higher Education, 1983, 1988, 1996; Isaac et al, 1992; Malaney & Isaac, 1988; Nettles, 1989; Schapiro et al. 1991) and the use of secondary data analysis where neither debt nor access to graduate school were the primary purposes for collecting the data (Ethington & Smart, 1986; Murphy, 1994; Weiler, 1991, 1994).

This study examines the postbaccalaureate decisions of 1992–93 bachelor's degree recipients who indicated during their senior year of college that they expected to pursue a doctoral degree. The focus is upon the influence of accumulated undergraduate debt upon students' decisions to apply and if accepted, to enroll in graduate or first professional school within a year of graduating from college. Several assumptions were made for these analyses. First, examining the experiences of students in the year immediately after graduating from college is important. One has the choice of examining the long-term decisions or the short-term decisions. The short term is the focus of this research and it is important because it may provide an explanation of the influence of debt on doctoral degree aspirants' decision-making processes. Implicit in the analyses is the assumption that the students who do not apply or enroll in graduate or first professional school immediately may or may not apply or enroll in the future. Second, the decision to study application to graduate or first professional school is based upon the structure of education in the United States presented in the *Digest of Education Statis-*

*tics 1999,* which shows that students may progress to the doctoral degree after completing either master's degree study or professional school study (U.S. Department of Education. National Center for Education Statistics, 2000b).

By focusing upon how undergraduate debt and other factors relate to graduate or first professional school application and attendance for students who say that they expect to achieve a doctoral degree, this study may help us to explain how debt affects students who are the most likely prospects for entering graduate and professional school. The study addresses the following question:

> What is the relationship of undergraduate educational indebtedness to the decisions of recent bachelor's degree recipients who expect to earn doctoral degrees, to apply to and if accepted, to enroll in a graduate or first professional degree program immediately after completing their bachelor's degree?

## *Methodology and Data Analyses*

### *The Sample*

The sample for this research is taken from the Baccalaureate and Beyond (B&B) Longitudinal Study of 1992–93 college graduates. It includes recent bachelor's degree recipients who expect to earn a doctoral degree and examines their application to a graduate or first professional school, and if admitted, their enrollment in either a graduate or first professional degree program within the year immediately following their graduation from college with a bachelor's degree. The B&B is a subsample of the National Postsecondary Student Aid Study (NPSAS), a nationally representative sample of all postsecondary students. NPSAS:93 provided the baseline data for B&B. B&B was designed to be representative of postsecondary students in the United States who completed their bachelor's degrees in the academic year 1992–93.[3]

Four criteria were used for selecting students for the sample for this study: (a) students were U.S. citizens, (b) students received their baccalaureate degree between July 1, 1992 and August 31, 1993, (c) students were not American Indians or Alaskan Natives,[4] and (d) students stated in the NPSAS interview that they expected to earn a doctoral degree. From the original B&B sample of 10,080, selecting U.S. citizens reduced the sample to 9,862, receiving a bachelor's degree reduced the sample to 9,734, selecting non-American Indians or Alaskan Natives reduced the sample to 9,613 cases, and expecting to earn a doctoral degree further reduced the sample to the 1,982 cases that constitute the focus of this study.

## *Modeling the Graduate School Attendance/Choice Process*

The conceptual model for this study depicts the relationship of students' academic and personal backgrounds to their transition to graduate and first professional school immediately after completing college. The premise of the model is that undergraduate debt along with students' personal background characteristics, the characteristics of their baccalaureate institution, their college experiences, and their immediate opportunity costs to attend graduate school, individually and collectively influence students' decisions to apply to graduate school and, if accepted, their decision to enroll in graduate school. The model incorporates the critical components of research by Hanson and Litten (1982), Hossler, Braxton and Coopersmith (1989), and Paulsen (1990), on college choice; the research of Ekstrom, et al. (1991), Ethington and Smart (1986), Hearn (1987), Nettles (1989), and Wilder and Baydar (1991) on persistence to graduate school; and the research of Fox (1992), Murphy (1994), Nettles (1989), Sanford (1980), Schapiro et al. (1991), Tsapogas and Cahalan (1996), and Weiler (1991, 1994) on the influence of financial indebtedness. The model is based upon the work of Ekstrom et al. (1991) and Wilder and Baydar (1991).

One predictor of enrollment in graduate or first professional school that may offset the influence of undergraduate debt is the offer of financial aid. With the exception of the mixed results of Ekstrom et al. (1991), earlier research (Baird, 1976, 1982; Butler-Nalin, Sanderson, & Redman, 1983; Ethington & Smart, 1986; McClain, Vance, & Wood, 1984; Remus & Isa, 1983; Wilder & Bayder, 1991) found that receiving financial aid has a strong positive influence on graduate school enrollment. The B&B asked students if they applied for financial aid at any of the graduate schools to which they applied for admission, but the B&B did not collect data to show whether and how much students received. Therefore it is not possible to measure the influence that receiving graduate school financial aid had on the odds of students enrolling in a graduate or first professional degree program unless the analyses are restricted to students' first choice school. The B&B collected information on whether students received offers of financial aid at the first two graduate schools to which they applied. In order to learn about the influence of the offer of financial aid on enrollment decisions two analyses will be presented. The first will be the analysis of students general application and enrollment if accepted in graduate or first professional school without considering the influence of an offer of financial aid. The second will be the analysis of students' application to their first choice graduate or first professional school and their enrollment, if accepted into their first choice graduate or first professional school with the offer of financial aid being included in the analysis.

Figure 1 presents the model of student flow into graduate school. The model contains five categories of independent variables that were derived from the literature review and two categories of dependent variables reflecting how students make the transition from undergraduate to graduate school and the factors that contribute to the two steps in the transition. The five categories of independent variables are: (a) personal background, (b) characteristics of the baccalaureate institution, (c) college experiences, (d) immediate opportunity costs to attend graduate or first professional school, and (e) offer of financial aid from the first choice graduate or first professional program if accepted (limited to the second set of analyses). The conceptual model shows the expected relationship of these categories of variables to students' decisions to apply to graduate or first professional school at the end of college, and their enrollment in a graduate or first professional degree program immediately upon receiving a bachelor's degree. The outcome (dependent) variables in the model are: (a) students' application to graduate or first professional school, with a second analysis for application to their first choice institution, and (b) if admitted, student enrollment in either a graduate or first professional degree program, with a second analysis for their first choice institution. The model displays the independent variables in categories simply as a means of illustrating the overall conceptual relational framework. Each independent variable, however, may exert independent influence throughout the model and will be analyzed in that way rather than as part of categories.

### *Variables*

B&B variables were selected for inclusion in the analyses on the basis of their fit into the seven major categories: (a) personal background, (b) characteristics of the baccalaureate institution, (c) college experiences, (d) immediate opportunity costs to attend graduate or first professional school, (e) offer of financial aid from first choice graduate or first professional program if accepted (this will only be entered for the first choice enrollment regression), (f) application to a graduate or first professional school, (g) enrollment in a graduate or first professional degree program if applied and admitted (see Table 2). Table 2 presents the variables used in the analyses of factors related to graduate or first professional school application and enrollment.

### *Independent Variables*

Personal background characteristics include sex, race/ethnicity, total income (parents and independent students) and parents' education. Sex

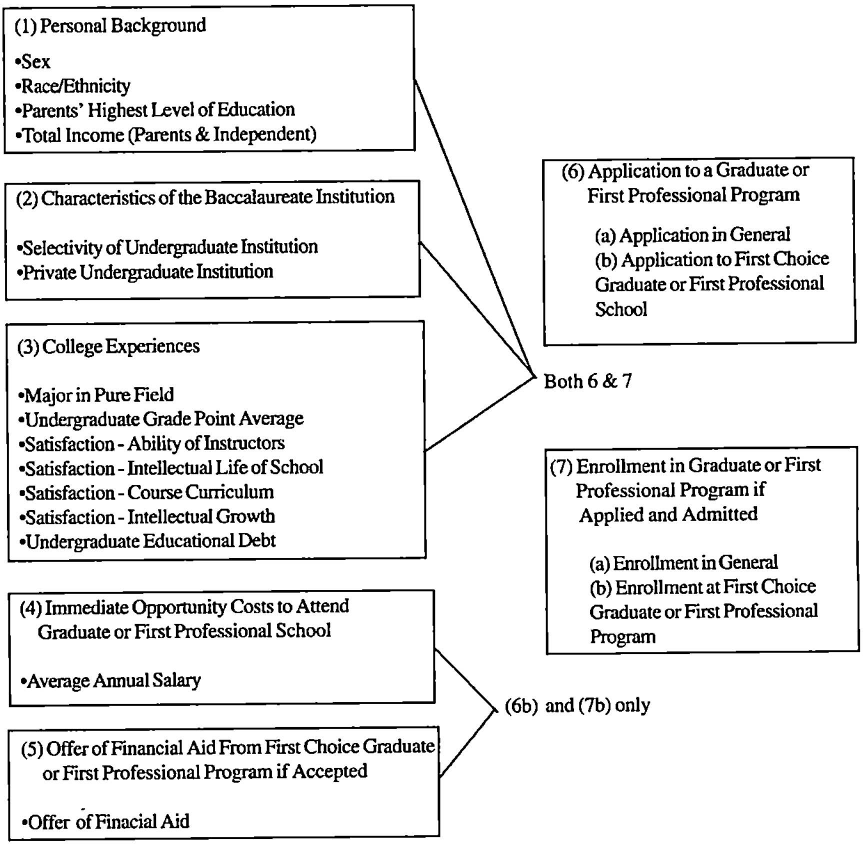
(1) Personal Background
•Sex
•Race/Ethnicity
•Parents' Highest Level of Education
•Total Income (Parents & Independent)
(2) Characteristics of the Baccalaureate Institution
•Selectivity of Undergraduate Institution
•Private Undergraduate Institution
(3) College Experiences
•Major in Pure Field
•Undergraduate Grade Point Average
•Satisfaction - Ability of Instructors
•Satisfaction - Intellectual Life of School
•Satisfaction - Course Curriculum
•Satisfaction - Intellectual Growth
•Undergraduate Educational Debt
(4) Immediate Opportunity Costs to Attend Graduate or First Professional School
•Average Annual Salary
(5) Offer of Financial Aid From First Choice Graduate or First Professional Program if Accepted
•Offer of Finacial Aid
(6) Application to a Graduate or First Professional Program
(a) Application in General
(b) Application to First Choice Graduate or First Professional School
Both 6 & 7
(7) Enrollment in Graduate or First Professional Program if Applied and Admitted
(a) Enrollment in General
(b) Enrollment at First Choice Graduate or First Professional Program
(6b) and (7b) only

FIG. 1. Model of student flow into graduate school or first professional school for doctoral degree aspirants

Note: Variable derived from Baccalaureate and Beyond

is a dichotomous variable with male having a value of 1. For race/ethnicity dichotomous variables were created for Black, Hispanic, and Asian American with Whites serving as the reference category. For total income dichotomous variables were created for income below $24,990 or less, income between $25,000 and $49,999, income between $50,000 and $79,999, income between $75,000 and $99,999 with income of $100,000 or higher serving as the reference category. Parents' education is a dichotomous variable with 1 indicating that parents' highest level of education is a bachelor's degree or higher.

The characteristics of the baccalaureate institution includes the selectivity of the undergraduate institution and the institutional control.

TABLE 2

Variables Used in Analyses of Factors Related to First Choice Graduate or First Professional School Application and Enrollment

| Variable Name | Definition |
|---|---|
| INDEPENDENT VARIABLES | |
| *(1) Personal background* | |
| Sex | A dummy equal to one if the student is male |
| Race/ethnicity | |
| African American | A dummy equal to one if the student is African American |
| Asian American | A dummy equal to one if the student is Asian American |
| Hispanic | A dummy equal to one if the student is Hispanic |
| White | A dummy equal to one if the student is White |
| Parent's highest level of education | A dummy equal to one if the student's parents' highest level of education is a bachelor's degree or higher |
| Family Income | |
| $24,999 or less | A dummy equal to one if the total income is $24,999 or less |
| $25,000 to $49,999 | A dummy equal to one if the total income is between $25,000 -$49,999 |
| $50,000 to $74,999 | A dummy equal to one if the total income is between $50,000 –$74,999 |
| $75,000 to $99,999 | A dummy equal to one if the total income is between $75,000 –$99,999 |
| $100,000 or higher | A dummy equal to one if the total income is $100,000 or higher |
| *(2) Characteristics of Baccalaureate Institution* | |
| Selectivity of college | |
| Less competitive, non competitive | A dummy equal to one if the student attended a Barron's or special selectivity ranked less competitive, non-competitive or special undergraduate college or university |
| Competitive | A dummy equal to one if the student attended a Barron's selectivity ranked competitive undergraduate college or university |
| Most, highly or very competitive | A dummy equal to one if the student attended a Barron's selectivity ranked most competitive, highly competitive or very competitive undergraduate college or university |
| Control | A dummy equal to one if the student attended a private undergraduate college or university |
| *(3) College Experiences* | |
| Pure | A dummy equal to one if the student majored in a field of study classified as pure by the Biglan classification system |
| Undergraduate GPA | |
| 2.74 or less | A dummy equal to one if the student's undergraduate GPA is less than or equal to 2.74 |
| 2.75 -3.24 | A dummy equal to one if the student's undergraduate GPA is between 2.75 -3.24 |
| 3.25 -3.74 | A dummy equal to one if the student's undergraduate GPA is between 3.25 -3.74 |
| 3.75 or higher | A dummy equal to one if the student's undergraduate GPA is between equal to or higher than 3.75 |

TABLE 2 (*Continued*)

| Variable Name | Definition |
|---|---|
| Ability of instructors | A dummy equal to one if the student is satisfied with the ability of instructors |
| Intellectual life of school | A dummy equal to one if the student is satisfied with the intellectual life of the school |
| Course curriculum | A dummy equal to one if the student is satisfied with the course curriculum |
| Intellectual growth | A dummy equal to one if the student is satisfied with his/her intellectual growth |
| Total undergraduate educational debt | |
| $100–$4,999 | A dummy equal to one if the student's undergraduate educational debt is between $100 and $4,999 |
| $5,000 -$9,999 | A dummy equal to one if the student's undergraduate educational debt is between $5,000 and $9,999 |
| $10,000 -$14,999 | A dummy equal to one if the student's undergraduate educational debt is between $10,000 and $14,999 |
| $15,000 or higher | A dummy equal to one if the student's undergraduate educational debt is equal to or greater than $15,000 |
| No debt | A dummy equal to one if the student has no undergraduate educational debt |
| *(4) Immediate opportunity costs to attend graduate school* | |
| Foregone average annual salary | |
| Less than $21,000 | A dummy equal to one if the student's estimated foregone earnings is less than $21,000 |
| $21,000 -$23,999 | A dummy equal to one if the student's estimated foregone earnings is between $21,000 and $23,999 |
| $24,000 -$26,999 | A dummy equal to one if the student's estimated foregone earnings is between $24,000 and $26,999 |
| $27,000 or higher | A dummy equal to one if the student's estimated foregone earnings is equal to or greater than $27,000 |
| *(5) Offer of Financial Aid from First Choice Graduate or Professional School* | |
| Financial aid offer | A dummy equal to one if the student is accepted and offered financial aid from the first choice graduate or first professional school |
| DEPENDENT VARIABLES | |
| *(6a) Application to graduate or first professional school* | A dummy equal to one if the student applies to a graduate or first professional program |
| *(6b) Application to first choice graduate or first professional school* | A dummy equal to one if the student applies to his/her first choice graduate or first professional program |
| *(7a) Enrollment in graduate or first professional program* | A dummy equal to one if the student enrolls in a graduate or first professional program having applied and been accepted |
| *(7b) Enrollment in first choice graduate or first professional program* | A dummy equal to one if the student enrolls in his/her first choice graduate or first professional program having applied and been accepted |

Using Barron's Profile of American Colleges, selectivity ratings were assigned to colleges and universities. The dichotomous variables less competitive, noncompetitive, or special and competitive were created with very, highly, or most competitive institutions serving as the reference category. Control is a dichotomous variable with private having a value of 1.

College experiences include whether students majored in a pure or applied field, their undergraduate GPA, their satisfaction with the ability of instructors, their satisfaction with the intellectual life of their undergraduate school, their satisfaction with their undergraduate curriculum, their satisfaction with their own intellectual growth, and their undergraduate educational debt. Undergraduate major is classified using Biglan's (1973) pure/applied paradigm (see Appendix for a complete listing). Pure/applied focuses on whether a department emphasizes pure research or the practical application of subject matter. Chemistry is an example of a pure field, while engineering is an example of an applied field. The rationale for this choice is that the Biglan's pure/applied paradigm allows for the classification of fields in a manner that is compatible with Davis' (1964) level of necessity of graduate school. In addition, analysis of the April 1994 activities of B&B students by the Department of Education reported that college graduates who had majored in the arts and sciences (18%) were more likely to enroll in further education full time than those who majored in professional fields (9%)[5] (U.S. Department of Education. National Center for Education Statistics, 1996).

Students' undergraduate GPA is measured on a 4.0 scale. Dichotomous variables were created for undergraduate GPA: 2.74 or less, 2.75 to 3.24, 3.25 to 3.74, and 3.75 or higher, which is the reference category. The four student satisfaction measures are each dichotomous variables with one being a yes: satisfaction with the ability of instructors, satisfaction with the intellectual life of the school, satisfaction with course curriculum, and satisfaction with intellectual growth. Students' undergraduate debt is a series of dichotomous variables: $100 to $4,999, $5,000 to $9,999, $10,000 to $14,999, $15,000 or higher and no debt, which is the reference category.

The immediate opportunity cost to attend graduate school is measured by students' projected average annual salary in the year following their graduation from college. The earnings projections are based upon the average September 1993 salary offers by major field of study for 1992–93 bachelor's recipients as reported by the National Association of Colleges and Employers (see Appendix).

The offer of financial aid variable was created on the basis of three other values: (a) applying to a master's, doctoral, or first professional degree program at their first choice institution, (b) being accepted to their first choice institution,[6] and (c) being offered financial aid by their first choice post-baccalaureate institution.[7]

### *Dependent Variables*

The transition from undergraduate school to graduate school is comprised of two steps. These two steps are measured as two separate dichotomous variables. The first step is application to a graduate or first professional school. The second step is enrollment in a graduate or first professional program, having been accepted.

Two versions of each of the dependent variables are presented for analysis in order to learn about the influence of the offer of financial aid on the graduate and first professional enrollment decision. The general application variable is based on students' general application to graduate or first professional school. The second version of the application variable is restricted to their application to their first choice graduate or first professional school. The first choice application variable was created on the basis of students reporting that (a) they applied to graduate or first professional school and (b) that they applied to a master's, doctoral, or first professional degree program at their first choice school. If cases answered yes to both of these questions, they were coded as applying to a first choice graduate school.

The second step is enrolling in a graduate or first professional degree program, having applied and been accepted. The general enrollment variable was created based on students enrolling in a graduate or first professional program, having been accepted. The first choice enrollment variable was created on the basis of students reporting that (a) they were accepted to their first choice graduate or first professional school, (b) they reported being enrolled at their first choice post-baccalaureate institution in 1993–94, and (c) they enrolled in a master's, doctoral, or first professional program in 1993–94. In order to determine if students enrolled in their first choice institution, IPEDS identification numbers for their first choice graduate or first professional school (B&B variable GS01CODE) were compared to the IPEDS identification numbers for the three possible institutions that students could have reported being enrolled in 1993–94 (B&B variables PB01IPED, PB02IPED, PB03IPED).

### *Limitations of the Variables*

An important issue in secondary data analysis is to acknowledge missing constructs. One important indicator missing from the analysis is the composition of the financial aid offer (fellowships, research or teaching assistantships, or loans). Therefore, it is not possible to determine the influence that particular types of graduate school aid such as fellowships, research or teaching assistantships, or loans had on the odds of students enrolling in a graduate or first professional degree program. B&B also does not contain information about students' attitude toward educational debt or their behavior with managing their debt (both educational and noneducational). We can only make inferences about their attitudes on educational debt on the basis of their actions.

Because B&B is the NCES college senior cohort study, it does not collect a great deal of retrospective data on students' college experiences that could be used to estimate senior year educational expectations. Given the research of Hearn (1987) and Pascarella (1984), who both found that freshman year educational aspirations had a positive influence on educational aspirations in later years, using B&B to estimate a model to predict educational aspirations in the senior year of college would be inappropriate since it would not include important predictor variables. The NCES Beginning Postsecondary Study (BPS) would be a more suitable data base to use for predicting senior year educational expectations. Since the primary focus of our study was to examine the application and enrollment behaviors of students who expressed an interest in earning a doctorate, students were selected for the sample if they stated in their senior year of college that they expect to earn a doctoral degree. This created a nonrandom sample of college graduates who applied to and enrolled in graduate or first professional school.

Acceptance to graduate school is the intermediate step between application and enrollment. In B&B, the factors that contribute to the graduate and first professional institutions admission decision are not collected. B&B only collects case reports about whether they were accepted to graduate or first professional school. Consequently, the factors that affect acceptance cannot be adequately determined.

A second issue that had to be addressed in constructing variables was how to handle missing data. While GRE scores were included in B&B, only 21.6% of the cases that expect to earn a doctoral degree reported total GRE scores. Hence, GRE scores were not included in the analyses. Because college grade point average and GRE scores are substantially correlated, this omission is not considered problematic.

A third issue in creating the variables for analysis was the constraint on creating the dependent variables for application and enrollment. These binary variables compared students who attend graduate or professional school immediately after college with a group that combines two dissimilar groups—those who delay their attendance and those who do not attend as well as those who delay their enrollment and those who do not enroll. Given the inability to distinguish between these two different groups because adequate time has not elapsed, it is not possible to know what the constraining effect of debt may be on these doctoral degree aspirants. For some members of the group the constraining effect of debt will be to postpone their application or enrollment decision, while for others debt may lead them to abandon their doctoral degree aspirations.

### *Statistical Analyses*

Weights are used to ensure that the sample is representative of the population of recent bachelor's degree recipients who are U.S. citizens, non-American Indians, or Alaskan Natives who expect to earn a doctoral degree. A sample weight was calculated using the design effect from the B&B 93/94 for all students who applied to graduate school (2.21), the B&B nonresponse adjusted weight (bnbwtl) and the mean of the weighting variable for the entire sample.

$$\text{Deffwt} = [1/2.21 * \text{bnbwtl}] \backslash 47.8852$$

The unweighted sample has 1,982 cases, the weighted sample has 94,909 cases, and the adjusted weighted sample has 1,982 cases. Students will be selected for continuation in the analysis if they (a) apply to graduate or first professional school, and (b) apply to graduate or first professional school and are accepted to graduate or first professional school.

The data analyses performed to address the research question are both descriptive and relational. Since the two outcome variables in the model of student post-baccalaureate transitions are dichotomous, logistic regressions are used. Logistic regression is used for predicting the likelihood that an event such as application to graduate or first professional school will occur. The enter method for model selection will be employed. The initial model will contain all the variables presented in Table 2 plus several interaction terms. The variables that have been entered will then be examined to see if they meet removal criteria. The removal criteria will be a $p$-value greater than 0.05. The interaction terms will first be examined to see if they meet the criteria for removal and then the other variables will be examined. The variable with the highest $p$-value greater than 0.05 will be removed, and the model will be rerun until no variables meet the criteria for removal.

Separate logistic regressions will be presented for application to graduate or first professional school and for enrollment in a graduate or first professional degree program. Each table of results includes the individual parameter estimates, asymptotic standard errors, and the significance level, odds ratios (change in the odds of applying or enrolling) and delta-P statistics (change in the probability of applying) of the estimates (see Petersen, 1985, and Cabrera, 1994, for details about the delta-P statistic). The results of the logistic regressions are presented as odds ratios for the likelihood of an event occurring. Odds ratios greater than one mean that the odds of an event occurring are increased, while odds ratios less than one mean that the odds of an event occurring are decreased. When the odds ratio is one, the odds are unchanged (Menard, 1995).

## *Findings*

### *General Process of Applying and Enrolling in Graduate or First Professional School*

*Descriptive analyses.* A total of 1,982 of the cases were U.S. citizens who received a bachelor's degree, were not American Indians or Alaskan Natives, and who expected to earn a doctorate. Approximately 52% of the sample applied to graduate or first professional school (see Figure 2). Of the 1,036 students who applied to graduate or first professional school, the overwhelming majority (86.1%) were accepted (*n* = 890). Of the 890 students who applied and were accepted, 67.9% enrolled in either a graduate or first professional degree program as their highest degree program after receiving their bachelor's degrees (*n* = 603). Of the 603 students who enrolled in graduate or first professional degree programs, 70% enrolled in a master's degree program, 18% enrolled in a doctoral degree program, and 12% enrolled in a first professional degree program. Among the 285 (32.1%) who did not enroll in a graduate or first professional degree program, 57 (20%) enrolled in other educational programs, such as a nondegree program or an associate's degree program, and 228 (80%) reported that they were not enrolled in an educational program.

Table 3 presents the analyses that show that undergraduate debt has an effect on students' decisions to apply to graduate or first professional school. Students with $100 to $4,999, $5,000 to $9,999, or $10,000 to $14,999 were equally likely to not apply or apply to graduate or first professional school ([49.4% vs. 50.6%], [52.4% vs. 47.6%], [53.4% vs. 46.6%]). Students with $15,000 or higher in debt were less likely to apply to graduate or first professional school (53.9% vs. 46.1%). In contrast, nearly 59% of the students without undergraduate debt applied to graduate or first professional school compared to 41% who did not.

Approximately 70% of students with no educational debt enrolled in

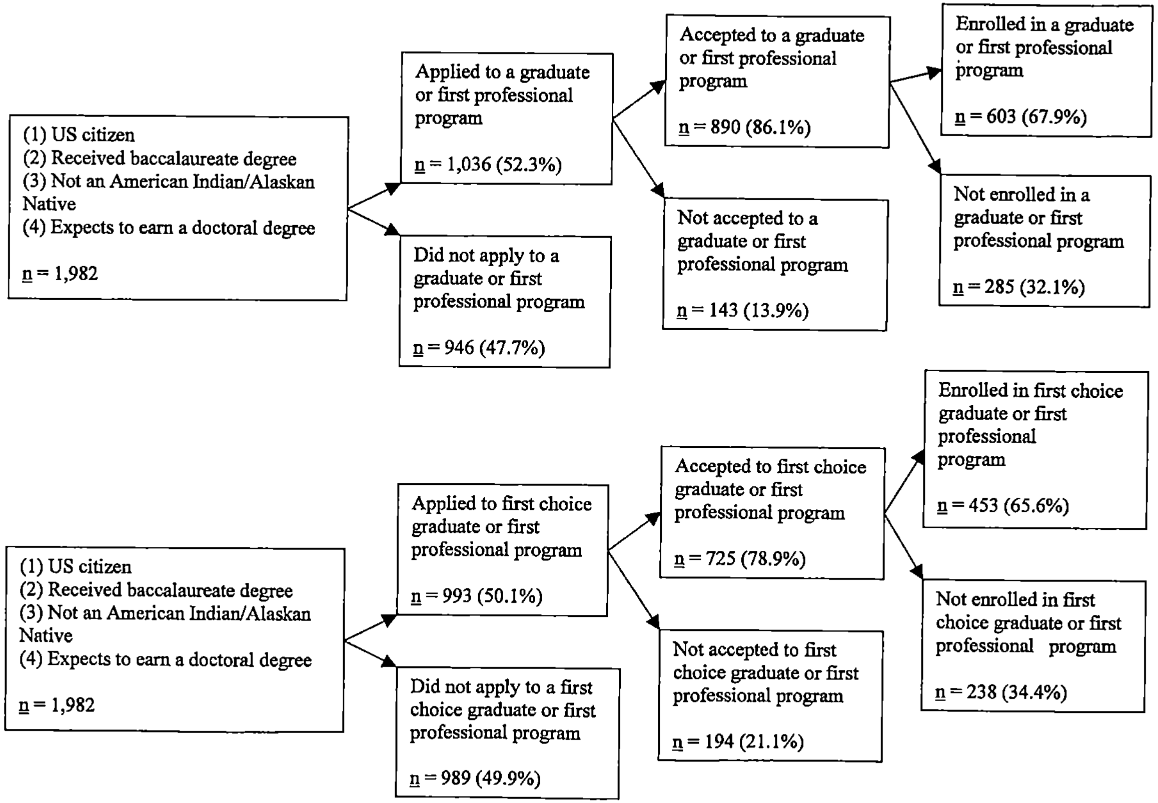
(1) US citizen (2) Received baccalaureate degree (3) Not an American Indian/Alaskan Native (4) Expects to earn a doctoral degree n = 1,982
Applied to a graduate or first professional program n = 1,036 (52.3%)
Did not apply to a graduate or first professional program n = 946 (47.7%)
Accepted to a graduate or first professional program n = 890 (86.1%)
Not accepted to a graduate or first professional program n = 143 (13.9%)
Enrolled in a graduate or first professional program n = 603 (67.9%)
Not enrolled in a graduate or first professional program n = 285 (32.1%)
(1) US citizen (2) Received baccalaureate degree (3) Not an American Indian/Alaskan Native (4) Expects to earn a doctoral degree n = 1,982
Applied to first choice graduate or first professional program n = 993 (50.1%)
Did not apply to a first choice graduate or first professional program n = 989 (49.9%)
Accepted to first choice graduate or first professional program n = 725 (78.9%)
Not accepted to first choice graduate or first professional program n = 194 (21.1%)
Enrolled in first choice graduate or first professional program n = 453 (65.6%)
Not enrolled in first choice graduate or first professional program n = 238 (34.4%)

FIG. 2. Student attrition through the process of completing a bachelor's degree, applying to graduate or first professional school, gaining acceptance, and enrolling in a graduate or first professional program by general process and first choice

TABLE 3

Total Undergraduate Debt for the 1993/94 Baccalaureate and Beyond Sample Who Apply and Do Not Apply to Graduate or First Professional School Within One Year of Receiving a Bachelor's Degree

| | Did Not Apply | Applied | Total |
|---|---|---|---|
| \$100–\$4,999 | 128 | 131 | 259 |
| Row % | 49.4% | 50.6% | 100% |
| Col % | 14.1% | 12.9% | 13.5% |
| \$5,000–\$9,999 | 152 | 138 | 290 |
| Row % | 52.4% | 47.6% | 100% |
| Col % | 16.7% | 13.6% | 15.1% |
| \$10,000–\$14,999 | 124 | 108 | 232 |
| Row % | 53.4% | 46.6% | 100% |
| Col % | 13.6% | 10.7% | 12.1% |
| \$15,000 Or Higher | 144 | 123[a] | 267 |
| Row % | 53.9% | 46.1% | 100% |
| Col % | 15.8% | 12.1% | 13.9% |
| No Debt | 362 | 514[a] | 876 |
| Row % | 41.3% | 58.7% | 100% |
| Col % | 39.8% | 50.7% | 45.5% |
| Totals | 910 | 1,014 | 1,924 |
| % within Row | 47.3% | 52.7% | 100% |
| % within Col | 100% | 100% | 100% |

NOTE: Since multiple comparisons were made, the critical *p*-value was adjusted down to 0.05/5 = 0.01 as the adjusted critical cut off point for each row comparison. In order to claim a comparison significant at the overall level of 0.05 an individual row comparisons must be significant at the 0.01 level.

[a] Significant difference between applying and not applying for students with this level of debt at $p < 0.05$

graduate or first professional school. Similar rates of enrollment were found for students with educational debt: 69.4% for students with \$100 to \$4,999, 71.9% for students with \$5,000 to \$9,999, 60.6% for students with \$10,000 to \$14,999, and 62.6% for students with \$15,000 or higher. The difference in enrolling in graduate or first professional programs between students with educational debt and students without was not statistically significant.

*Regression analyses.* Before the logistic regressions were executed, a linear regression was run for both the application and enrollment models using the variables listed in Table 2 to conduct collinearity diagnostics (Menard, 1995). In both the application model and the enrollment model, all of the tolerances exceeded 0.70, indicating no serious problem of collinearity. Logistic regression analyses were executed and are presented in this section to show the contribution of student background characteristics, undergraduate characteristics, collegiate performance, indebtedness, and foregone income after controlling for other factors in the model for each of the two dependent variables in the model: (a) application to graduate or first professional school and (b) enrollment in a graduate or first professional degree program, having applied and been accepted.

### *Applying to a Graduate or First Professional School*

In the full-model analysis, the independent variables sex, race, total income, parents' education, selectivity of the undergraduate college or university, being in a pure major as an undergraduate, GPA, satisfaction with the ability of instructors, satisfaction with intellectual life of the undergraduate college or university, satisfaction with the undergraduate curriculum at the undergraduate college or university, satisfaction with students' intellectual growth, undergraduate debt, and forgone income along with the interaction terms Race x Totaldebt, Income x Totaldebt, Control x Totaldebt, and Pure x Totaldebt were regressed on application to graduate or first professional school. The full logistic regression modeled the categorical variables as categoricals using dummy variables and included several interaction terms for a total of 64 parameter estimates and involved 1,668 cases. The final model had 19 parameter estimates and involved 1,739 cases (see Table 4).[8]

After controlling for all other factors, undergraduate debt was a significant predictor of applying to graduate or first professional school in the final model ($p < 0.05$). Students with debt of $5,000 to $9,999 had 1.6 times lower odds of applying to graduate or first professional school than students with no undergraduate debt (the reference category) ($p < 0.001$).[9] Students with debt ranging from $10,000 to $14,999 had 1.4 times lower odds of applying to graduate or first professional school than students with no undergraduate debt ($p < 0.05$). When the $p$-value is relaxed to 0.06 for significance, students with undergraduate debt ranging from $15,000 or higher had 1.3 times lower odds of applying to graduate or first professional school than students with no undergraduate debt. Having debt of $100 to $4,999 did not significantly change the odds of students applying to graduate or first professional school compared to their peers without debt.

After controlling for all other factors, GPA had a powerful effect on the odds that a student who aspired to a doctoral degree would apply to graduate or first professional school. Students with a GPA of 2.74 or less were 3.5 times less likely to apply to graduate or first professional school compared to their peers with a GPA of 3.75 or higher (the reference category) ($p < 0.001$). Students with a GPA of 2.75 to 3.24 were 2.1 times less likely to apply than their peers with a GPA of 3.75 or higher

TABLE 4

Application to Graduate or First Professional School—Reduced Model

| | Parameter Estimate | Standard Error | $p$-value | Odds Ratio | Delta-P |
|---|---|---|---|---|---|
| Sex | 0.433 | 0.109 | 0.000 | 1.541 | 0.105 |
| Race/Ethnicity | | | 0.010 | | |
| African American | 0.569 | 0.190 | 0.003 | 1.767 | 0.135 |
| Asian American | 0.398 | 0.265 | 0.133 | 1.489 | 0.096 |
| Hispanic | −0.124 | 0.239 | 0.603 | 0.883 | −0.031 |
| Parent's have a BA or higher | 0.204 | 0.107 | 0.055 | 1.227 | 0.050 |
| Selectivity of college | | | 0.022 | | |
| Less competitive, non competitive or special | −0.412 | 0.151 | 0.006 | 0.663 | −0.103 |
| Competitive | −0.181 | 0.115 | 0.116 | 0.834 | −0.045 |
| Pure | 0.748 | 0.114 | 0.000 | 2.113 | 0.174 |
| Undergraduate GPA | | | 0.000 | | |
| 2.74 or less | −1.252 | 0.193 | 0.000 | 0.286 | −0.287 |
| 2.75–3.24 | −0.748 | 0.178 | 0.000 | 0.473 | −0.182 |
| 3.25–3.74 | −0.427 | 0.176 | 0.015 | 0.652 | −0.106 |
| Total Undergraduate Educational Debt | | | 0.010 | | |
| \$100–\$4,999 | −0.279 | 0.159 | 0.080 | 0.757 | −0.070 |
| \$5,000–\$9,999 | −0.485 | 0.151 | 0.001 | 0.615 | −0.120 |
| \$10,000–\$14,999 | −0.366 | 0.169 | 0.030 | 0.694 | −0.091 |
| \$15,000 or higher | −0.294 | 0.156 | 0.060 | 0.745 | −0.073 |
| Foregone average annual salary | | | 0.000 | | |
| Less than \$21,000 | −0.181 | 0.171 | 0.291 | 0.834 | −0.045 |
| \$21,000–\$23,999 | −0.340 | 0.173 | 0.049 | 0.712 | −0.085 |
| \$24,000–\$26,999 | −0.689 | 0.166 | 0.000 | 0.502 | −0.169 |
| Constant | 0.749 | 0.225 | 0.001 | 2.115 | 0.174 |

| | | | |
|---|---|---|---|
| Unweighted *n* | 1745 | PCP | 0.64 |
| Weighted *n* | 1739 | $X^2$ | 176.646 |
| Number of Parameters | 19 | Sig of $X^2$ | 0.000 |
| Baseline Po | 0.5336 | Hosmer Lemeshow $X^2$ | 11.421 |
| −2 Log likelihood | 2225.502 | Sig of Hosmer Lemeshow | 0.179 |
| *df* | 1726 | | |

SOURCE: U.S. Department of Education. National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study (1996).

($p < 0.001$). Students with a GPA of 3.25 to 3.74 were 1.5 times less likely to apply to graduate or first professional school than their peers with a GPA of 3.75 or higher ($p < 0.05$). Undergraduate major was another predictor of applying to graduate or first professional school. Students who majored in a pure field as undergraduates were 2.1 times more likely to apply to graduate or first professional school than students who majored in an applied field ($p < 0.001$).

Men were 1.5 times more likely to apply to graduate or first professional school than women ($p < 0.001$). Race was a significant predictor of applying to graduate or first professional school ($p < 0.01$). After controlling for all other factors, the odds of African American students applying to graduate or first professional school were 1.8 times higher than those of White students (the reference category) ($p < 0.01$). Being either Hispanic or Asian American, however, did not significantly change the odds of applying to graduate or first professional school compared to those of White students. Students whose parents' highest level of educational attainment was a bachelor's degree or higher were 1.2 times more likely to apply to graduate or first professional school than their peers whose parents had not attained a bachelor's degree or higher ($p < 0.10$).

The selectivity of students' undergraduate college or university was also associated with applying to graduate or first professional school ($p < 0.05$). Students who attended a less competitive, noncompetitive or special undergraduate college or university were 1.5 times less likely to apply to graduate or first professional school compared to their peers who attended most, highly, or very competitive colleges and universities (the reference category) ($p < 0.01$). Attending a competitive undergraduate college or university did not significantly change the odds of applying to graduate or first professional school compared to students who attended most, highly, or very competitive colleges and universities. Forgone earnings were also associated with applying to graduate or first professional school ($p < 0.001$). Students with a foregone income of $21,000 to $23,999 were 1.4 times less likely to apply to graduate or first professional school compared to their peers with foregone incomes of $27,000 or higher ($p < 0.05$). Students with a foregone income of $24,000 to $26,999 were 2 times less likely to apply to graduate or first professional school compared to their peers with foregone incomes of $27,000 or higher ($p < 0.001$).

Several measures of assessing the fit of the final model were reviewed. The chi-square statistic for overall fit although presented ($X^2 = 176.646$) and significant ($p < 0.001$) is not a valid measure of goodness of fit for the model because of the sparseness of the data. This particular statistic is not an acceptable procedure when assessing goodness of fit when the number of covariate classes is approximately equal to the number of observations, which occurs in this dataset (Hosmer & Lemeshow, 1989, pp. 138–139). While the –2 LL statistic is presented (2255.502), Menard (1995) contends that the "Hosmer Lemeshow goodness-of-fit index may have some advantage over $D_M$ (–2 LL) when the number of possible combinations of values of the independent variables is equal (or approximately equal) to the number of cases in the analyses but otherwise tends to produce results consistent with $D_M$" (Menard, 1995, pp. 20–21). The Hosmer Lemeshow Goodness of Fit test chi square value was 11.421 with a $p$-value of 0.179 (see Table 4). Therefore, we accept the null hypothesis that this particular model is a good fit at the 5% level.[10]

### *Enrollment in a Graduate or First Professional Degree Program*

In the full model, the independent variables along with the interaction terms for Race x Totaldebt, Income x Totaldebt, Control x Totaldebt, and Pure x Totaldebt for a total of 64 parameter estimates were regressed on enrolling in a graduate or first professional degree program. The logistic regression on enrollment involved 779 cases. In the reduced model, 14 parameter estimates were regressed on enrolling in a graduate or first professional degree program for 809 cases (see Table 5). In the reduced model, undergraduate debt did not have a significant effect on enrollment in a graduate or first professional degree program.

Two variables had a significant effect on enrollment in a graduate or first professional degree program (see Table 5). The odds of students with total incomes of $24,999 or less enrolling in a graduate or first professional program were 2.4 times lower than those of their peers with family incomes of $100,000 or higher (the reference category) ($p < 0.01$). Students with total incomes ranging from $25,000 to $49,999 were 2.1 times less likely to enroll in a graduate or first professional program than their peers with family incomes of $100,000 or higher ($p < 0.05$). Students with total incomes ranging from $50,000 to $74,999 were 2 times less likely to enroll in a graduate or first professional program than their peers with family incomes of $100,000 or higher ($p < 0.05$). Students who attended less competitive, noncompetitive or special undergraduate colleges or universities were 1.8 times less likely to enroll in a graduate or first professional degree program than their peers who attended most, highly, or very competitive undergraduate colleges or universities ($p < 0.05$).

If the $p$-value is relaxed to the 0.06 level, then two other variables had a significant effect on enrollment in a graduate or first professional degree program. The odds of students who were satisfied with the undergraduate course curriculum enrolling in a graduate or first professional degree program were nearly 1.5 times greater than the odds of students who were not satisfied. Students with foregone incomes of $21,000 or less were 1.6 times less likely to enroll in a graduate or first professional program than their peers with foregone incomes of $27,000 or higher. Students with foregone incomes of $21,000 to $23,999 were 1.5 times

TABLE 5
Enrollment in Graduate or First Professional School—Reduced Model

| | Parameter Estimate | Standard Error | *p*-value | Odds Ratio | Delta-P |
|---|---|---|---|---|---|
| Total Income | | | 0.005 | | |
| $24,999 or less | –0.884 | 0.300 | 0.003 | 0.413 | –0.213 |
| $25,000 to $49,999 | –0.725 | 0.309 | 0.019 | 0.484 | –0.173 |
| $50,000 to $74,999 | –0.672 | 0.306 | 0.028 | 0.511 | –0.160 |
| $75,000 to $99,999 | 0.067 | 0.394 | 0.865 | 1.069 | 0.015 |
| Selectivity of college | | | 0.016 | | |
| Less competitive, non competitive or special | –0.571 | 0.224 | 0.011 | 0.565 | –0.135 |
| Competitive | 0.033 | 0.175 | 0.853 | 1.033 | 0.007 |
| Undergraduate GPA | | | 0.091 | | |
| 2.74 or less | –0.412 | 0.268 | 0.125 | 0.662 | –0.096 |
| 2.75–3.24 | –0.217 | 0.240 | 0.366 | 0.805 | –0.049 |
| 3.25–3.74 | 0.118 | 0.240 | 0.623 | 1.125 | 0.025 |
| Satisfaction with course curriculum | 0.418 | 0.219 | 0.056 | 1.519 | 0.084 |
| Foregone average annual salary | | | 0.022 | | |
| Less than $21,000 | –0.461 | 0.243 | 0.058 | 0.631 | –0.108 |
| $21,000–$23,999 | –0.438 | 0.226 | 0.053 | 0.645 | –0.102 |
| $24,000–$26,999 | 0.080 | 0.250 | 0.749 | 1.083 | 0.017 |
| Constant | 1.427 | 0.422 | 0.001 | 4.167 | 0.221 |

| | | | |
|---|---|---|---|
| Unweighted *n* | 842 | PCP | 0.67 |
| Weighted *n* | 809 | $X^2$ | 51.343 |
| Number of Parameters | 14 | Sig of $X^2$ | 0.000 |
| Baseline Po | 0.6761 | Hosmer Lemeshow $X^2$ | 11.979 |
| –2 Log likelihood | 966.269 | Sig of Hosmer Lemeshow | 0.152 |
| *df* | 828 | | |

SOURCE: U.S. Department of Education. National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study (1996).

less likely to enroll in a graduate or first professional program than their peers with foregone incomes of $27,000 or higher.

As with the application model, the sparseness of the data in the enrollment model raises questions regarding the appropriateness of several of the goodness of fit measures that are generated. The Hosmer Lemeshow chi square test for the final enrollment model was 11.979, and the significance of the Hosmer Lemeshow test was 0.152, indicating a good fit (see Table 5).

### *The Process of Applying and Enrolling in First Choice Graduate or First Professional School*

*Descriptive analyses.* Similar to the general process of applying and enrolling in graduate school, approximately 50.1% of the sample applied to a first choice graduate or first professional school (see Figure 2). Of the 993 students who applied to a first choice graduate or first professional school, the majority (78.9%) were accepted (*n* = 725). Of the 725 students who applied and were accepted, 65.6% enrolled in their first choice graduate or first professional degree program as their highest degree program after receiving their bachelor's degrees (*n* = 453). Of the 453 students who enrolled in graduate or first professional degree programs, 332 (73.5%) were enrolled in a master's degree program, 79 (17.5%) were enrolled in a doctoral degree program and 42 (9.1%) were enrolled in a first professional degree program. Among the 238 (34.4%) who did not enroll in a first choice graduate or first professional degree program, 58 (24%) were enrolled in a graduate or first professional degree program that was not their first choice, 28 (11.8%) were enrolled in other educational programs, such as a nondegree program or an associate's degree program, and 152 (64.1%) reported that they were not enrolled in an educational program.

*Regression analyses.* The regression analyses presented in this section show the contribution of student background characteristics, undergraduate characteristics, collegiate performance, indebtedness and foregone income and the offer of financial aid (enrollment model only) after controlling for other factors in the model for each of the two dependent variables in the model: (a) application to first choice graduate or first professional school and (b) enrollment in a first choice graduate or first professional degree program, having applied and been accepted.

### *Applying to a First Choice Graduate or First Professional School*

In the full model, the independent variables sex, race, total income, parents' education, selectivity of the undergraduate college or university, being in a pure major as an undergraduate, GPA, satisfaction with the ability of instructors, satisfaction with intellectual life of the undergraduate college or university, satisfaction with the undergraduate curriculum at the undergraduate college or university, satisfaction with students' intellectual growth, undergraduate debt, and forgone income along with the interaction terms Race x Totaldebt, Income x Totaldebt, Control x Totaldebt, and Pure x Totaldebt for a total of 64 parameter estimates were regressed on application to first choice graduate or first professional school. The full model analysis included 1,668 cases. The reduced logistic regression model on application to first choice graduate or first professional school included 19 parameter estimates and involved 1,813 cases (see Table 6).

TABLE 6

Application to First Choice Graduate or First Professional School—Reduced Model

| | Parameter Estimate | Standard Error | $p$-value | Odds Ratio | Delta-P |
|---|---|---|---|---|---|
| Sex | 0.345 | 0.106 | 0.001 | 1.412 | 0.085 |
| Race/Ethnicity | | | 0.006 | | |
| African American | 0.522 | 0.181 | 0.004 | 1.685 | 0.127 |
| Asian American | 0.541 | 0.258 | 0.036 | 1.717 | 0.131 |
| Hispanic | –0.103 | 0.232 | 0.657 | 0.902 | –0.026 |
| Total Income | | | 0.002 | | |
| $24,999 or less | –0.599 | 0.192 | 0.002 | 0.550 | –0.146 |
| $25,000 to $49,999 | –0.491 | 0.197 | 0.013 | 0.612 | –0.121 |
| $50,000 to $74,999 | –0.272 | 0.197 | 0.166 | 0.762 | –0.068 |
| $75,000 to $99,999 | –0.015 | 0.245 | 0.952 | 0.985 | –0.004 |
| Selectivity of college | | | 0.045 | | |
| Less competitive, non competitive or special | –0.367 | 0.148 | 0.013 | 0.693 | –0.091 |
| Competitive | –0.108 | 0.112 | 0.336 | 0.898 | –0.027 |
| Pure | 0.782 | 0.112 | 0.000 | 2.185 | 0.184 |
| Undergraduate GPA | | | 0.000 | | |
| 2.74 or less | –1.142 | 0.186 | 0.000 | 0.319 | –0.261 |
| 2.75–3.24 | 0.629 | 0.170 | 0.000 | 0.533 | –0.153 |
| 3.25–3.74 | 0.277 | 0.168 | 0.101 | 0.758 | –0.069 |
| Foregone average annual salary | | | 0.000 | | |
| Less than $21,000 | –0.240 | 0.167 | 0.150 | 0.786 | –0.060 |
| $21,000–$23,999 | –0.415 | 0.169 | 0.014 | 0.660 | –0.103 |
| $24,000–$26,999 | –0.740 | 0.162 | 0.000 | 0.477 | –0.179 |
| Constant | 0.884 | 0.259 | 0.001 | 2.421 | 0.205 |

| | | | |
|---|---|---|---|
| Unweighted *n* | 1826 | PCP | 0.63 |
| Weighted *n* | 1813 | $X^2$ | 177.381 |
| Number of Parameters | 18 | Sig of $X^2$ | 0.000 |
| Baseline Po | 0.5135 | Hosmer Lemeshow $X^2$ | 7.740 |
| –2 Log likelihood | 2332.435 | Sig of Hosmer Lemeshow | 0.459 |
| *df* | 1808 | | |

SOURCE: U.S. Department of Education. National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study (1996).

In the final model, after controlling for all other factors, undergraduate debt was not a significant predictor of applying to a first choice graduate or first professional school. Income, however, was a significant predictor of applying to a first choice graduate or first professional school. Students with income of $24,999 or less had 1.8 times lower odds of applying to their first choice graduate or first professional school than students with family incomes of $100,000 or higher (the reference category) ($p < 0.01$). Students with incomes of $25,000 to $49,999 were 1.6 times less likely to apply to graduate or first professional school compared to their peers with incomes of $100,000 or higher ($p < 0.05$). Having total income of \$50,000 to \$74,999 did not significantly change the odds of students applying to graduate or first professional school compared to the odds of their peers with total incomes of \$100,000 or higher.

After controlling for all other factors, GPA had a strong effect on the odds that a student who aspired to a doctoral degree would apply to a first choice graduate or first professional school. Students with a GPA of 2.74 or less were 3.1 times less likely to apply to a first choice graduate or first professional school compared to their peers with a GPA of 3.75 or higher (the reference category) ($p < 0.01$). Students with a GPA of 2.75 to 3.24 were 1.9 times less likely to apply than their peers with a GPA of 3.75 or higher ($p < 0.01$). Having a GPA of 3.25 to 3.74 did not significantly change the odds of students applying to a first choice graduate or first professional school compared to students with a GPA of 3.75 or higher. Undergraduate major was another predictor of applying to a first choice graduate or first professional school. Students who majored in a pure field as undergraduates were 2.2 times more likely to apply to a first choice graduate or first professional school than students who majored in an applied field ($p < 0.001$).

Men were 1.4 times more likely to apply to a first choice graduate or first professional school than women ($p < 0.001$). Race was a significant predictor of applying to a first choice graduate or first professional school ($p < 0.01$). After controlling for all other factors, the odds of African American students applying to first choice graduate or first professional school were 1.7 times higher than the odds for White students (the reference category) ($p < 0.01$). The odds of Asian American students applying to a first choice graduate or professional school were 1.7 times higher than the odds for White students ($p < 0.05$). Being Hispanic, however, did not significantly change the odds of applying to graduate or first professional school compared to those of White students.

The selectivity of students undergraduate college or university was also associated with applying to a first choice graduate or first professional school. Students who attended a less competitive, noncompetitive or special undergraduate college or university were 1.4 times less likely to apply to a first choice graduate or first professional school compared to their peers who attended most, highly, or very competitive colleges and universities (the reference category) ($p < 0.05$). Forgone earnings were also associated with applying to a first choice graduate or first professional school. Students with a foregone income of \$21,000 to \$23,999 were 1.5 times less likely to apply to a first choice graduate school, and students with a foregone income of \$24,000 to \$26,999 were 2.1 times less likely to apply to a first choice graduate or first professional school compared to their peers with foregone incomes of \$27,000 or higher (the reference category). For the final model, the Hosmer Lemeshow chi square test was 7.740, and the significance of the Hosmer Lemeshow test was 0.459, indicating a good fit.

### *Enrollment in a First Choice Graduate or First Professional Degree Program*

In the full model, the independent variables in the application model along with a dichotomous variable indicating whether students were offered financial aid and the interaction terms for Race x Totaldebt, Income x Totaldebt, Control x Totaldebt, Pure x Totaldebt, and Offer of Financial Aid x Totaldebt were regressed on enrolling in a first choice graduate or first professional degree program. The logistic regression on enrollment in a first choice program with the 69 parameter estimates involved 540 cases. The reduced first choice enrollment model included 12 parameter estimates and 607 cases (see Table 7). Like the general enrollment model, undergraduate debt did not have a significant effect on enrollment in their first choice graduate or first professional degree program in the reduced model, but income did have a significant effect. The odds of students with total incomes of $24,999 or less enrolling in their first choice graduate or first professional program were 2.9 times lower than their peers with family incomes of $100,000 or higher (the reference category) ($p < 0.01$). Both students with total incomes ranging from $25,000 to $49,999 and students with total incomes ranging from $50,000 to $74,999 were 2.5 times less likely to enroll in a first choice graduate or first professional program than their peers with family incomes of $100,000 or higher ($p < 0.01$).

In the reduced model, the offer of financial aid was a significant predictor of enrollment in first choice graduate or first professional school enrollment. Students who were offered financial aid by their first choice graduate or first professional school were 2 times more likely to enroll than their peers who were not offered aid ($p < 0.001$).

Race had a significant effect on enrollment in a first choice graduate or first professional degree program (see Table 7). The odds of African American students enrolling in a first choice graduate or first professional program were 3.4 times lower than those of their White peers (the reference category) ($p < 0.001$). Hispanic students were 2.4 times less likely to enroll in a first choice graduate or first professional program than their White peers ($p < 0.01$). If the $p$-value is relaxed to 0.06, then Asian American students were 2.4 times less likely to enroll in their first choice graduate or first professional school than their White peers.

Students with foregone incomes of less than $21,000 were 2 times less likely to enroll in a first choice graduate or first professional pro-

TABLE 7

Enrollment in First Choice Graduate or First Professional School—Reduced Model

| | Parameter Estimate | Standard Error | *p*-value | Odds Ratio | Delta-P |
|---|---|---|---|---|---|
| Race/Ethnicity | | | 0.000 | | |
| African American | −1.217 | 0.306 | 0.000 | 0.296 | −0.294 |
| Asian American | −0.892 | 0.475 | 0.060 | 0.410 | −0.215 |
| Hispanic | −0.884 | 0.378 | 0.019 | 0.413 | −0.213 |
| Total Income | | | 0.012 | | |
| $24,999 or less | −1.056 | 0.352 | 0.003 | 0.348 | −0.256 |
| $25,000 to $49,999 | −0.928 | 0.359 | 0.010 | 0.396 | −0.224 |
| $50,000 to $74,999 | −0.913 | 0.353 | 0.010 | 0.401 | −0.221 |
| $75,000 to $99,999 | −0.248 | 0.435 | 0.568 | 0.780 | −0.057 |
| Foregone average annual salary | | | 0.022 | | |
| Less than $21,000 | −0.670 | 0.290 | 0.021 | 0.512 | −0.160 |
| $21,000 -$23,999 | −0.547 | 0.266 | 0.040 | 0.579 | −0.129 |
| $24,000 -$26,999 | −0.046 | 0.291 | 0.873 | 0.955 | −0.010 |
| Offer of Financial Aid | 0.694 | 0.191 | 0.000 | 2.001 | 0.131 |
| Constant | 1.650 | 0.371 | 0.000 | 5.207 | 0.241 |

| | | | |
|---|---|---|---|
| Unweighted *n* | 645 | PCP | 0.71 |
| Weighted *n* | 607 | $X^2$ | 62.288 |
| Number of Parameters | 12 | Sig of $X^2$ | 0.000 |
| Baseline Po | 0.6738 | Hosmer Lemeshow $X^2$ | 4.252 |
| −2 Log likelihood | 705.176 | Sig of Hosmer Lemeshow | 0.750 |
| *df* | 633 | | |

SOURCE: U.S. Department of Education. National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study (1996).

gram than their peers with foregone incomes of $27,000 or higher (the reference group) ($p < 0.05$). Students with foregone incomes of $21,000 to $23,999 were 1.7 times less likely to enroll in a graduate or first professional program than their peers with foregone incomes of $27,000 or higher. Students with foregone incomes of $24,000 to $26,999 did not have significantly different odds of enrolling in their first choice graduate or first professional program than their peers with foregone incomes of $27,000 or higher. The Hosmer Lemeshow chi square test was 4.252, and the significance of the Hosmer Lemeshow test was 0.750, indicating a good fit for the final model.

## *Summary and Conclusions*

### *Undergraduate Debt*

In this study of 1992–93 college students who expect to earn a doctoral degree, undergraduate loan debt does appear to lead to a new class of indentured servants who appear to be impaired by their debt from making the transition to graduate school within one year of earning their bachelor's degree. Students with debt of $5,000 or higher are significantly less likely to apply to graduate or first professional school than their peers who did not have educational debt (see Table 4).

Forty-six percent of the 1992–93 college graduates who expected to earn a doctoral degree did not have educational debt; the other 54% accumulated an average debt of $10,691. Among the 1992–93 college graduates, students with accumulated educational debt greater than $5,000 represented 41% of the students who expected to earn a doctoral degree. Of the students who have debt and expect to earn a doctoral degree 75% had educational debt greater than $5,000 (see Table 3).

It is important to know who the students are who have educational debt. If we know who these students are, then we may be able to address the obstacles that hinder students with educational debt from applying to graduate or first professional school. Table 8 shows that compared to students without educational debt, students who have educational debt are more likely to have parents who have not earned a bachelor's degree. Nearly a third of the students who have less than $5,000 in debt, 31.7% of student with $5,000 to $9,999 in debt, 42% of students with $10,000 to $14,999, and 28.1% of students with debt of $15,000 or more have parents whose highest education level is high school or less. By contrast, 19.5% of the students who have no educational debt had parents whose highest education level is high school or less. In comparison, 40.2% of students without educational debt have parents whose educational attainment is an advanced degree, whereas approximately 25% of students who reported having educational debt have parents with an advanced degree.

TABLE 8
Undergraduate Indebtedness by Parents' Educational Attainment

| | High School or Less | Some Postsecondary Education | Bachelor's | Advanced |
|---|---|---|---|---|
| Less than $5,000 | 34.0% | 23.8% | 15.2% | 27.0% |
| $5,000–$9,999 | 31.7% | 17.6% | 25.5% | 25.2% |
| $10,000–$14,999 | 42.0% | 16.4% | 18.6% | 23.0% |
| $15,000 or more | 28.1% | 25.1% | 19.0% | 27.8% |
| No debt | 19.5% | 13.9% | 26.4% | 40.2% |
| Total | 27.2% | 17.7% | 22.8% | 32.3% |

NOTES: $X^2(12, n = 1{,}891) = 110.92, p < 0.001$.

Important differences are also found when family income is considered (see Table 9). Approximately 41% of the students who have less than $5,000 in educational debt, 44.6% of students with $5,000 to $9,999 in educational debt, 46.8% of students with educational debt of $10,000 to $14,999 and 50.4% of students with $15,000 or higher in educational debt reported 1991 family incomes of less than $24,999 compared to 18.6% of students without educational debt. At the other end of the income continuum, 2% of students with educational debt had family incomes of $100,000 or higher compared to 17% of students without educational debt. This shows that educational debt is related to family income. The lower the family income, the more likely recent college graduates are to have educational debt.

This study has found that 1992–93 bachelor's degree recipients who expected to earn a doctoral degree appeared not to be adversely affected by financial indebtedness in enrolling in graduate or first professional degree programs if they apply and are accepted. The offer of financial aid by the student's first choice graduate or first professional program was a significant predictor of enrolling. This finding suggests that offers of financial aid may mitigate the effect of having educational debt on students' decisions to continue their educational careers. Because the B&B does not have financial aid packages or amounts awarded to students who do not enroll, it is not possible to examine the precise effects of financial aid.

One surprising finding in this study was that students with lower opportunity costs defined as foregone earnings are less likely to apply to or enroll in graduate or first professional school than their peers with higher foregone earnings. This finding contradicts undergraduate college-choice research (Bishop, 1977, Fuller, Manski, & Wise, 1982; Kohn, Manski, & Mundel, 1976; Manski & Wise, 1983) that examines

TABLE 9

Educational Indebtedness by 1991 Family Income

| | $24,999 or less | $25,000 to $49,999 | $50,000 to $74,999 | $75,000 to $99,999 | $100,000 or higher |
|---|---|---|---|---|---|
| Less than $5,000 | 40.8% | 29.0% | 21.6% | 7.5% | 1.2% |
| $5,000–$9,999 | 44.6% | 32.2% | 17.6% | 4.5% | 1.0% |
| $10,000–$14,999 | 46.8% | 28.3% | 18.9% | 3.9% | 2.1% |
| $15,000 or more | 50.4% | 21.3% | 19.8% | 4.5% | 4.1% |
| No debt | 18.6% | 22.7% | 29.7% | 12.0% | 17.0% |
| Total | 33.3% | 25.5% | 24.1% | 8.2% | 8.9% |

NOTES: $X^2(16, n = 1{,}921) = 292.47, p < 0.001$

students choosing between enrollment in a college or university or selecting other alternatives, such as work or military service. The college-choice research posits that an individual student will select college or university attendance if the perceived benefits of attendance outweigh the perceived benefits of the noncollege alternative.

Two studies (Tsapogas & Cahalan, 1996, and Weiler, 1991) examined the influence of foregone income on enrollment in graduate or professional school. Using HS&B, Weiler (1991) constructed a foregone income variable to measure the income that cases forego when they enroll in graduate or professional school. Foregone income had a negative effect upon the decision to enroll in a master's program but was not a significant effect upon enrolling in graduate or professional programs. Tsapogas and Cahalan (1996) estimated foregone income using the average salary for those employed full-time by major by sex. They found that students who majored in fields where they were able to command relatively high salaries without graduate degrees were less likely to go to graduate school. Separate analyses for males and females yielded similar findings. Tsapogas and Cahalan also found that bachelor's degree holders in the life sciences, social sciences, and the physical sciences were more likely to enroll in graduate studies to acquire further education before they began a career compared to their peers with degrees in engineering or the computer sciences.

On the basis of this research, students with relatively high foregone income can be less likely to apply or less likely to enroll in graduate or professional school than students with comparatively low foregone incomes. Perhaps Hauptman's (1986) observation that the pool of applicants and their perception of labor market conditions, as well as the availability of financial aid, affect who goes to graduate school begins to shed light on the multiple facets of the decision-making process of selecting graduate school.

### *Applications for Educational Policymakers*

The effect of educational indebtedness on the transition to graduate school for U.S. citizens is an important consideration for educational policy makers. In 1976–77, nonresident aliens represented 11% of the doctoral degree recipients at U.S. graduate schools, by 1993–94 their representation had more than doubled (26%). This raises questions about whether American graduate and professional education are becoming less accessible to American students than for their counterparts from abroad. U.S. educational policymakers are in a position to make doctoral education an appealing choice and a plausible option for recent college graduates.

On the basis of the finding from this study that undergraduate indebtedness is a deterrent to application to graduate or first professional school for 41% of the doctoral degree aspirants in 1992–93, policymakers could argue that the federal student loan program, as it was constructed in the early 1990s, does not meet the requirements established by Senator Pell that debt not be an impediment to students. The federal government appears to have provided student loans that enabled students to gain access to college, but in this study, having educational loans greater than $5,000 prohibited 1992–93 college graduates who expect to earn a doctoral degree from pursuing further their educational goals in the year immediately after they graduated from college. This is particularly important in light of the shift in balance of federal financial aid policy from grants to loans. Table 1 shows that the increase in the percentage of students who borrowed from 1992–93 to 1995–96 was 32% for seniors at public 4-year institutions and 18% for seniors at private institutions, while the percentage change in amount borrowed over the same time period was a 57% increase at public institutions and a 45% increase at private institutions. Policymakers may want to heed the finding that lower socioeconomic students who aspire to doctoral degree programs are choosing not to make the transition to graduate or first professional school.

In addition, on the basis of the findings from this study policymakers could examine sex and race as other factors that contribute to doctoral degree aspirants not making the transition to graduate or first professional school. Men were more likely to apply than women. African Americans were more likely to apply than Whites, but they were less likely to enroll in their first choice graduate or first professional school than Whites. While it may be inappropriate to include such demographic characteristics as race and sex criteria for type and amount of loan and debt burden, the evidence from this research suggests that policymakers should take a closer look at strategies for encouraging women and African Americans to apply to graduate or first professional school immediately after receiving their bachelor's degrees given the different influence that debt appears to have upon their decisions to apply for graduate and first professional school. Since African Americans are so severely underrepresented in graduate and first professional degree programs, this research lends support for the need to at the very least continue programs that have been successful in encouraging underrepresented minorities and women like the Patricia Roberts Harris fellowships[11] and also justifies establishing additional programs to reduce racial effects of debt burden.

Policymakers should be disturbed by the findings of the negative influence of loans for 41% of the college graduates of 1992–93. It is important to conduct routine analyses of the effect of loans upon students' post-baccalaureate educational opportunities in order to assess whether student loan debt is becoming more of a burden than it is intended to be. Only by continually examining the effects of federal financial aid policy changes will we know if the 1992–93 findings represent one brief moment in time or a new trend in the nation's federal financial aid program.

APPENDIX

Undergraduate Major by the Biglan Classification and the CPC Salary Estimate for 1992–93

| Pure/ Applied Label | Broad Major Area | B&B Variable-UGMJCODE | CPC Salary or Mean Sub or Overall Mean Sub | CPC Major |
|---|---|---|---|---|
| Applied | Other | Agricultural Science | $25,378 | Other agricultural sciences |
| Applied | Other | Agriculture | $25,378 | Other agricultural sciences |
| Applied | Lifephys | Natural Resources | $22,442 | Natural Resources |
| Applied | Lifephys | Forestry | $25,378 | Other agricultural sciences |
| Applied | Other | Architecture | $23,676 | Architectural & Environmental Design |
| Pure | Socsci | American Civilization | $22,684 | Social Sciences -Other |
| Pure | Humanity | Area Studies | $24,373 | Humanities-Other |
| Pure | Humanity | African-American Studies | $24,373 | Humanities-Other |
| Pure | Humanity | Ethnic Studies, Not Black/Area Studies | $24,373 | Humanities-Other |
| Applied | Business | Accounting | $27,493 | Accounting |
| Applied | Business | Finance | $24,555 | Economics and Finances (incl. Banking) |
| Applied | Business | Business/Management Systems | $26,083 | Business Admin (including Management Science) |
| Applied | Business | Management/Business Administration | $24,555 | Business Admin (including Management Science) |
| Applied | Business | Secretarial | $25,335 | Mean Starting Business Salary |
| Applied | Business | Business Support | $25,335 | Mean Starting Business Salary |
| Applied | Business | Marketing/Distribution | $24,361 | Marketing/Marketing Management (inc. Research) |
| Applied | Other | Journalism | $20,583 | Journalism |
| Applied | Other | Communications | $21,498 | Communications |
| Applied | Other | Communication Technology | $23,450 | Telecommunications/ Broadcasting |
| Applied | Matheng | Computer Programming | $31,329 | Computer Science |
| Applied | Matheng | Computer and Information Sciences | $29,723 | Information Sciences and Systems |

APPENDIX (*Continued*)

| Pure/ Applied Label | Broad Major Area | B&B Variable-UGMJCODE | CPC Salary or Mean Sub or Overall Mean Sub | CPC Major |
|---|---|---|---|---|
| Applied | Educ | Education: Early Childhood | $16,463 | Pre-elementary Education |
| Applied | Educ | Education: Elementary | $20,097 | Elementary Education |
| Applied | Educ | Education: Secondary | $20,097 | Elementary Education |
| Applied | Educ | Education: Special | $21,837 | Special Education |
| Applied | Educ | Education: Physical | $21,376 | Physical Education |
| Applied | Educ | Education: Other | $19,943 | Mean Starting Education Salary |
| Applied | Matheng | Engineering: Electrical | $34,313 | Electrical |
| Applied | Matheng | Engineering: Chemical | $39,482 | Chemical |
| Applied | Matheng | Engineering: Civil | $29,211 | Civil |
| Applied | Matheng | Engineering: Mechanical | $34,450 | Mechanical |
| Applied | Matheng | Engineering: all other | $32,924 | Mean Starting Engineering Salary |
| Applied | Matheng | Engineering Technology | $29,236 | Engineering Technology |
| Pure | Humanity | Spanish | $23,025 | Foreign Languages |
| Pure | Humanity | Foreign Langs: non-European | $23,025 | Foreign Languages |
| Pure | Humanity | Foreign Langs: European, Not Spanish | $23,025 | Foreign Languages |
| Applied | Health | Allied Health: Dental/ Medical Tech | $29,208 | Allied Health |
| Applied | Health | Allied Health: Community/ Mental Health | $29,208 | Allied Health |
| Applied | Health | Health/Phys Ed/Recreation (HPER) | $27,944 | Mean Starting Health Sciences Salary (excl. Pharmacy) |
| Applied | Health | Allied Health: Nurse Assisting | $29,208 | Allied Health |
| Applied | Health | Allied Health: General and Other | $29,208 | Allied Health |
| Applied | Health | Health: Audiology | $27,944 | Mean Starting Health Sciences Salary (excl. Pharmacy) |
| Applied | Health | Health: Clinical Health Science | $27,944 | Mean Starting Health Sciences Salary (excl. Pharmacy) |
| Applied | Health | Health: Dentistry | $27,944 | Mean Starting Health Sciences Salary (excl. Pharmacy) |
| Applied | Health | Health: Medicine | $27,944 | Mean Starting Health Sciences Salary (excl. Pharmacy) |
| Applied | Health | Health: Veterinary Medicine | $22,060 | Animal Science |
| Applied | Health | Health: Nursing | $31,064 | Nursing |
| Applied | Health | Health: Health/Hospital Admin. | $27,944 | Mean Starting Health Sciences Salary (excl. Pharmacy) |
| Applied | Health | Health: Public Health | $27,944 | Mean Starting Health Sciences Salary (excl. Pharmacy) |

APPENDIX (*Continued*)

| Pure/ Applied Label | Broad Major Area | B&B Variable-UGMJCODE | CPC Salary or Mean Sub or Overall Mean Sub | CPC Major |
|---|---|---|---|---|
| Applied | Health | Health: all other | $27,944 | Mean Starting Health Sciences Salary (excl. Pharmacy) |
| Applied | Health | Health: Dietetics | $27,944 | Mean Starting Health Sciences Salary (excl. Pharmacy) |
| Applied | Other | Textiles | $21,769 | Textiles and Clothing |
| Applied | Other | Home Economics: all other | $21,106 | Mean Starting Home Economics Salary |
| Applied | Other | Vocational Home Econ: Child Care | $21,106 | Mean Starting Home Economics Salary |
| Applied | Other | Law: Paralegal, includes pre-Law | $22,680 | Criminal Justice |
| Applied | Other | Law | $22,680 | Criminal Justice |
| Pure | Humanity | Letters: English/American Lit. | $21,285 | Letters |
| Pure | Humanity | Letters: Creative/Technical Writing | $21,285 | Letters |
| Applied | Humanity | Liberal Studies | $24,373 | Humanities-Other |
| Pure | Lifephys | Biol. Sci.: Zoology | $22,179 | Other Physical and Earth Sciences |
| Pure | Lifephys | Biol. Sci.: Botany | $24,000 | Plant Science |
| Pure | Lifephys | Biol. Sci. Biochemistry | $28,002 | Chemistry |
| Pure | Lifephys | Biol. Sci.: all other | $21,558 | Biological |
| Pure | Matheng | Mathematics: Statistics | $25,524 | Mathematics (incl. Statistics) |
| Pure | Matheng | Mathematics: Not Statistics | $25,524 | Mathematics (incl. Statistics) |
| Pure | Other | Military Sciences | $26,886 | Overall mean starting salary (70 salaries) |
| Pure | Humanity | Women's Studies | $24,373 | Humanities-Other |
| Pure | Lifephys | Interdisciplinary: Environmental Stud. | $22,179 | Other Physical and Earth Sciences |
| Pure | Lifephys | Interdisciplinary: Biopsychology | $21,558 | Biological |
| Pure | Lifephys | Interdisciplinary: all other | $26,448 | Mean Starting Sciences Salary |
| Applied | Other | Leisure Studies | $26,886 | Overall mean starting salary (70 salaries) |
| Applied | Other | Basic/Personal Skills | $26,886 | Overall mean starting salary (70 salaries) |
| Pure | Humanity | Philosophy | $24,373 | Humanities-Other |
| Pure | Humanity | Religious Studies | $24,373 | Humanities-Other |
| Pure | Humanity | Clinical Pastoral Care | $24,373 | Humanities-Other |
| Pure | Lifephys | Physical Sci.: Chemistry | $28,002 | Chemistry |
| Pure | Lifephys | Physical Sci.: Earth Science | $22,179 | Other Physical and Earth Sciences |

APPENDIX (*Continued*)

| Pure/ Applied Label | Broad Major Area | B&B Variable-UGMJCODE | CPC Salary or Mean Sub or Overall Mean Sub | CPC Major |
|---|---|---|---|---|
| Pure | Lifephys | Physical Sci.: Physics | $26,896 | Physics |
| Pure | Lifephys | Physical Sci.: Not Chem/ Physics/Earth | $22,179 | Other Physical and Earth Sciences |
| Pure | Socsci | Psychology | $20,571 | Psychology |
| Applied | Other | Protective Services | $26,886 | Overall mean starting salary (70 salaries) |
| Applied | Socsci | Social Work | $22,684 | Social Sciences—Other |
| Applied | Business | Public Administration, Not Social Work | $25,335 | Mean Starting Business Salary |
| Pure | Socsci | Anthropology/Archaeology | $22,684 | Social Sciences—Other |
| Pure | Socsci | Economics | $26,902 | Economics and Finances (incl. Banking) |
| Pure | Socsci | Geography | $22,684 | Social Sciences—Other |
| Pure | Socsci | History | $23,839 | History |
| Pure | Socsci | Sociology | $22,079 | Sociology |
| Pure | Socsci | Political Science | $24,478 | Political Science/ Government |
| Pure | Business | International Relations | $25,576 | Economics and Finances (incl. Banking) |
| Applied | Other | City Planning | $23,676 | Architectural & Environmental Design |
| Applied | Other | Industrial Arts: Construction | $23,676 | Architectural & Environmental Design |
| Applied | Matheng | Industrial Arts: Electronics | $28,701 | Industrial Technology |
| Applied | Humanity | Commercial Art | $20,591 | Visual and Performing Arts |
| Applied | Other | Precision Production | $26,886 | Overall mean starting salary (70 salaries) |
| Applied | Humanity | Design | $20,591 | Visual and Performing Arts |
| Pure | Humanity | Speech/Drama | $20,591 | Visual and Performing Arts |
| Pure | Humanity | Music | $20,591 | Visual and Performing Arts |
| Pure | Humanity | Art History/Fine Arts | $24,373 | Humanities—Other |
| Pure | Humanity | Fine and Performing Arts: all other | $20,591 | Visual and Performing Arts |
| Applied | Other | No major | $26,886 | Overall mean starting salary (70 salaries) |

## Notes

[1] Bachelor's degree recipients are defined as U.S. citizens who were not American Indians or Alaskan Natives.

[2] The Consortium on Financing Higher Education includes Amherst College, Barnard College, Brown University, Bryn Mawr College, Carleton College, Cornell University, Dartmouth College, Duke University, Georgetown University, Harvard University, Johns Hopkins University, Massachusetts Institute of Technology, Mount Holyoke College,

Northwestern University, Oberlin College, Pomona College, Princeton University, Rice University, Smith College, Stanford University, Swarthmore College, Trinity College, University of Chicago, University of Pennsylvania, University of Rochester, Washington University, Wellesley College, Wesleyan College, Williams College, Yale University.

[3] Received or expected to receive a baccalaureate degree between July 1, 1992 and June 30, 1993.

[4] Because American Indians and Alaskan Natives represent less than 1% of the sample, they were not included in the analyses.

[5] Professional fields included business and management, education, engineering, health professions and public affairs/social services. Arts and sciences fields included biological sciences, mathematics and other sciences, social science, history, humanities, and psychology.

[6] If a student responded "hadn't heard" for being accepted at first choice and they enrolled in their first choice post-baccalaureate institution, they were coded as accepted.

[7] If a student responded "hadn't heard" for being offered financial aid by their first choice institution, and they reported receiving financial aid in graduate or first professional school they were coded as being offered financial aid. Students who did not apply for financial aid were not included in the analyses.

[8] The number of cases in the regression was dependent on missing data for the variables included in the regression.

[9] Formula is (1/odds ratio). (1/0.615 = 1.6)

[10] With the number of covariate classes approximately equal to the number of observations, we encounter sparseness (empty cells) when trying to apply the –2LL test. In the B&B data set constructed for this article, the number of observations in the full application model is 1,668, and the number of covariate classes is 1,228,800 (2*4*2*5*3*2*2*4*2*2*2*2*5*4). In order to apply the normal –2LL test, the number of observations per class should be greater than 1 (I used 5 as a rough threshold). In this case, at least 6,144,440 (5*1,228,888) total observations are required with a minimum of 5 observations in each class in order to legitimately use the –2LL test.

[11] The Patricia Roberts Harris Fellowship Program provides grants, through institutions of higher education, to women and individuals from minority groups that are underrepresented in master's level, first professional, and doctoral education programs.

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# Experiences of Differential Treatment Among College Students of Color

Incidents of ethnic and racial discrimination are still prevalent in American universities (Chang, 2000; Pettigrew, 1998). Many campuses are struggling with racial tensions among students from diverse race groups. African American students, in particular, are more likely than Caucasians to be the target of some form of direct, personal racism (Ancis, Sedlacek, & Mohr, 2000; Fisher & Hartmann, 1995; Gossett, Cuyjet, & Cockriel, 1998). These types of incidents include differential treatment and stereotyping by fellow students, faculty members, campus police, teaching assistants, administrators, and staff. African American students have perceived more interracial tensions on campus, have reported significantly less satisfaction with the institution, and have also reported that faculty members often assess their academic performance more negatively than they do for Caucasian students (Ancis, et al., 2000; Coleman, Jussim, & Isaac, 1991).

Relevant to this study is the assessment of specific situations in which college students experience differential treatment. Because students' perceptions and attributions may also account for experiencing differen-

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tial treatment, general appraisals of degree of discrimination and offensiveness involved in situations of such nature were additionally explored. The importance of studying racial and ethnic discrimination incidents in college campuses becomes crucial to understand the interplay of psychological and socio-environmental factors associated with experiences of differential treatment among college students, especially those from minority groups.

In an attempt to assess the trend in racial discrimination, McCormack (1995) reported an increase in racial discrimination over a four-year period against both African American and Hispanic students. McCormack compared data from 1988 and 1992 on the number of incidents and type of discrimination, detecting a shift in the nature of racism from subtle forms (e.g., ostracism) in the 1988 data to forms of blatant attacks (e.g., verbal harassment and differential treatment) in the 1992 data. The most common form of discrimination was verbal harassment in the form of racial slurs, exclusion from activities, and physical violence. In a follow-up study, the same author (McCormack, 1998) found that incidents of discrimination in universities had increased, and she confirmed that acts of discrimination became more overtly expressed. Results showed that African Americans and Hispanics were more likely to experience incidents of discrimination than Asian students. However, Asian students were more likely to be victims of discrimination in 1996 than in 1988. Gossett et al. (1998) studied African American perceptions of marginality in primarily white campuses and found that non-African American students were not aware of the perceived discrimination experienced by their African American peers.

Regarding intergroup perceptions, Jackson (1995) and her colleagues (see Jackson, Hodge, Gerard, Ingram, Ervin, & Sheppard, 1996) argue that many Anglo university students hold negative stereotypes and attitudes toward minority students, more specifically towards African American and Hispanic students. For example, Jackson (1995), found that Anglo students perceive Hispanics as uneducated, and less intelligent and productive than Anglo individuals. Jackson et al. (1996) found evidence that "Anglo-Americans associated less positive affect and more fear with African Americans than with Anglo-Americans" (p. 310). Additionally, Anglo students valued to a lesser degree reducing discrimination than their African American counterparts. Asian American students, on the other hand, were more likely than Caucasian students to report pressure to conform to racial stereotypes regarding academic performance (e.g., being a good student) and social behavior (e.g., being shy and quiet) in order to be accepted by others (Ancis, et al., 2000).

Experiencing discrimination has tremendous negative consequences on minority student adjustment and persistence in school. Minority students might feel alienated (Oliver, Rodriguez, & Michelson, 1985), intimidated (Freeman, 1997), segregated (Gossett et al., 1998), isolated, and out of place in primarily white institutions (Turner, 1994). Furthermore, perceptions of differential treatment have emerged as one of the explanations for the difference in college retention rates between Caucasian and African American and Hispanic students (Nora & Cabrera, 1996).

Concerning the sources and environments conducive to discrimination, minority students reported that faculty and other students often constitute the primary perpetrators of such acts, whereas campuses are the contexts par excellence. According to McCormack (1995, 1998), the tendency for faculty as authors of discriminative behavior showed a considerable increase from 1988 (34%) to 1996 (43%). Rienzi, Allen, Sarmiento, and McMillin (1993), reported similar findings. Obviously, these findings put minority students in a disadvantageous position, since the interaction between students and faculty is a fundamental component of students' academic success (Holmes, Rupert, Ross, & Shapera, 1999). As Seyfried (1998) posited, "It is the quality of the student-teacher interaction that contributes to the students' reality of the classroom experience" (p. 387). Since students learn what is expected of them through these interactions, differential treatment may exert a negative impact on minority students' performance (Parr, 1999). Related to the specific environments in which discrimination events take place, McCormack (1998) points out that living on campus and spending time at the institution increases the likelihood of such occurrences.

Students of color who might experience discrimination are likely to develop systematic patterns of attributions regarding perceptions of prejudice and discrimination across many situations (Branscome, Schmitt, & Harvey, 1999). They may also acknowledge that their group membership influences, to some extent, the way other people treat them. The use of stereotypes has important implications for members of victimized groups (Pinel, 1999; Ruggiero & Taylor, 1997). Branscome, Schmitt, and Harvey (1999) claim that African Americans, for instance, perceive group-based discrimination as illegitimate and unfair. Nevertheless, they found that perceptions of illegitimacy of discriminatory events were not related to reports of past experiences of discrimination.

Undoubtedly, race has a strong impact on the daily experiences of college students, and both African American and Caucasian students recognize the need to cultivate a positive sense of cultural diversity and promote affirmative, positive racial interactions in the college community (Chang, 1999, 2000; Fisher & Hartmann, 1995). Unfortunately, the presence of some various factors increases the probability that such events will happen again. According to Farrell and Jones (1988), some of these factors include unclear rules and punishment for discriminatory behavior, low percentage of minority faculty and students, and lack of institutional initiatives to promote integration. Chang (2000) also suggested that racial dynamics in universities are very fragile. Dilemmas, such as excellence versus equal access, need to be addressed if higher education institutions aspire to improve racial relations and provide minority students with the conditions to develop their full capacities.

Issues of race and racism not only persist, but also are of utmost concern on college campuses today (Suarez-Balcazar, 1998). However, systematic information is needed to determine the specific college campus situations in which students experience differential treatment. Relevant to this study is the identification of those particular situations of college life in which students perceive differential treatment, and the examination of differences in frequency of experience of such events among students of different racial groups. In addition, the study explores the extent to which experiences of differential treatment are related to perceptions of offensiveness and discrimination manifested in such campus-related situations. We hypothesize that peer and faculty-related interactions are more likely to be identified as situations of differential treatment, and that students of color are likely to experience situations of discrimination significantly more often than Caucasian students. Additionally, we predict that students' appraisals of discrimination and offensiveness are independent of reported past experiences of discrimination. Of interest is the frequency with which students experience campus-related situations of discrimination, the degree to which these situations are found offensive, and the extent to which the student believes the situations are attributable to racial discrimination.

## *Method*

### *Participants*

A sample of 500 Caucasian and 495 students of color were randomly selected from a pool of 5,272 undergraduates (3,994 Caucasian and 1,278 students of color) enrolled at a private Midwestern urban university. Participants received a survey containing a list of 20 events of differential treatment.

Three hundred and twenty-two undergraduate students returned completed surveys (32% return rate). Forty-five percent (*n* = 146) of the respondents were Caucasian; 44% were African American (12%, *n* = 39), Hispanic (15%, *n* = 47), or Asian American (17%, *n* = 56). Eleven percent ($n = 34$) of the surveys returned were dropped from the analysis because the respondents had checked the "other" race/ethnic category. Sixty-six percent of the participants were female and 34% were male. Thirty-one percent were seniors, 26% were juniors, 22% were sophomores, and the remaining 21% were freshmen. Thirty-one percent of the students lived on campus, while the remaining 69% lived off campus. The demographic characteristics of the sample were checked against the general characteristics of the campus regarding gender and housing, and were found to be representative.

### *Instrument Survey Development*

The study was conducted in two phases. During the first phase, we followed Goldfried and D'Zurilla's (1969) model of contextual analysis to develop a series of college life situations from the personal experiences of students. First, three graduate students from the Psychology Department recruited six students of color from psychology courses. These six students were asked to provide the names of friends, roommates or other students of color they knew, not necessarily from psychology courses, who they thought might want to participate in this study.

In this way a total of 30 interviews were conducted. The interview, about 30 minutes in length, asked students to describe one or two situations they may have experienced in the last six months where they thought they were treated differently than any other student due to their ethnic or racial background. A total of 50 situations were compiled and refined. Content analysis and pilot testing were conducted to identify common themes, similarities, and redundancy. This process yielded a total of 20 unique situations including denial of services, being ignored in class participation by the instructor, and being ignored by peers in a group situation. In addition, there were situations of students being denied access to a setting, enduring stereotypic remarks by others, being stereotyped in class and rejected by others in social gatherings. Each of the situations was presented in vignettes of three or four sentences.

During the second phase of the study, students of color and Caucasian students were asked to assess the degree to which (1) the situation described had happened to them; (2) the situation was considered personally offensive; and (3) discrimination was involved in each situation. Participants answered the vignettes based on their experiences during the last year using three sets of 5-point scales. For experience of differential treatment, 1 represented "never" and 5 "more than three times," whereas for degree of offensiveness and discrimination manifested, 1 represented "not at all" and 5 "very much."

### *Data Analysis Strategy*

The analysis of the data consisted of four main stages. First, we examined descriptive statistics of all survey items by ethnic group and gender. Second, we used confirmatory factor analysis (CFA) for model generation (Jöreskog, 1993) to construct reliable composite subscales of perceived differential treatment to be used as dependent variables. Third, we conducted a multivariate analysis of variance (MANOVA), using ethnic group and gender as independent variables and composite subscales of perceived discrimination, scales of degree of discrimination, and degree of offensiveness manifested as dependent variables. We performed these analyses to test two hypotheses: (1) that peer-faculty interactions and academic settings are more likely to be identified as environments associated with differential treatment and (2) that students of color report more incidents of discrimination than their Caucasian peers. Finally, we computed Pearson-product moment correlations between the dependent variables to determine whether reporting differential treatment was related to appraisals of discrimination and offensiveness.

## *Results*

### *Descriptive Statistics*

Three key questions were asked for each of the vignettes presented to the respondents. The questions included: (1) frequency of experience of a situation like the one described in the vignette; (2) degree of offensiveness of the depicted situation; and (3) degree of discrimination manifested by the situation. The question related to experiencing differential treatment was addressed by using two subscales (i.e., perceived differential treatment of campus-related social situations and perceived differential treatment in student-faculty academic situations), which were obtained trough CFA for model generation (Jöreskog, 1993). The questions about degree of offensiveness and discrimination manifested were assessed via unitary scales. Overall, measures of the two subscales of differential treatment and degree of offensiveness and discrimination manifested in the situation were obtained by averaging the means.

Overall, means for "perceived differential treatment of campus-related social situations" and "perceived differential treatment in student-faculty academic situations" across ethnic groups were 1.66 and 1.80 (*SDs* = 0.70 and 0.74, respectively). Overall means for appraisal of both "degree of offensiveness" and "degree of discrimination" manifested in the situations described were 3.98 and 3.97 (*SDs* = 0.59 and 0.57, respectively). Table 1 shows the means for "perceived differential treatment of campus-related social situations," "perceived differential treatment in student-faculty academic situations," "degree of offensiveness" and "degree of discrimination" by ethnic group and gender.

### *Factor Analysis of Perceived Differential Treatment Vignettes*

Because the focus of the present study was on identifying experiences of differential treatment and their relationship to perceptions of offensiveness and discrimination of campus-related situations, we employed a set of confirmatory factor analysis (CFA) for model generation (Jöreskog, 1993) to determine the underlying dimensional structure of differential treatment among college students of diverse ethnic backgrounds.

Three factor models (i.e., one, two, and three-factor solutions) regarding perceived differential treatment were assessed by comparing a variety of indices of absolute (i.e., GFI, RMSEA) and relative (i.e., CFI, NNFI) fit[1] (see Hu & Bentler, 1995, for a detailed discussion of fit indices), and the internal consistency (i.e., Cronbach's Alpha) of the factors obtained in each model. We tested the competing models by using

TABLE 1

Means and Standard Deviations (SDs) for Main Dependent Measures by Ethnic Group and Gender

| Dependent Variable | Ethnic Group | Male | | Female | | Total | |
|---|---|---|---|---|---|---|---|
| | | Mean | *SD* | Mean | *SD* | Mean | *SD* |
| Perceived differential treatment in campus-related social situations | A. American | 2.08 | 1.05 | 1.57 | 0.70 | 1.71 | 0.83 |
| | Asian | 1.96 | 0.95 | 1.77 | 0.82 | 1.84 | 0.87 |
| | Caucasian | 1.55 | 0.53 | 1.63 | 0.61 | 1.60 | 0.59 |
| | Hispanic | 1.73 | 0.49 | 1.56 | 0.69 | 1.61 | 0.63 |
| | Total | 1.73 | 0.73 | 1.63 | 0.68 | 1.66 | 0.70 |
| Perceived differential treatment in student faculty academic situations | A. American | 2.36 | 1.07 | 2.29 | 0.97 | 2.31 | 0.98 |
| | Asian | 1.85 | 0.78 | 1.84 | 0.77 | 1.85 | 0.77 |
| | Caucasian | 1.59 | 0.52 | 1.68 | 0.64 | 1.66. | 0.60 |
| | Hispanic | 2.08 | 0.82 | 1.64 | 0.56 | 1.78 | 0.68 |
| | Total | 1.82 | 0.75 | 1.79 | 0.73 | 1.80 | 0.74 |
| Degree of offensiveness of the depicted situations | A. American | 3.89 | 0.70 | 4.25 | 0.32 | 4.15 | 0.52 |
| | Asian | 3.78 | 0.70 | 3.88 | 0.75 | 3.84 | 0.73 |
| | Caucasian | 3.88 | 0.51 | 4.01 | 0.49 | 3.97 | 0.50 |
| | Hispanic | 3.71 | 0.71 | 4.10 | 0.70 | 3.97 | 0.72 |
| | Total | 3.86 | 0.61 | 4.04 | 0.57 | 3.98 | 0.59 |
| Degree of discrimination being manifested on the situations | A. American | 3.96 | 0.74 | 4.29 | 0.31 | 4.20 | 0.49 |
| | Asian | 3.73 | 0.63 | 3.93 | 0.74 | 3.85 | 0.70 |
| | Caucasian | 3.78 | 0.55 | 4.01 | 0.48 | 3.94 | 0.51 |
| | Hispanic | 3.66 | 0.53 | 4.10 | 0.67 | 3.96 | 0.65 |
| | Total | 3.80 | 0.58 | 4.05 | 0.55 | 3.97 | 0.57 |

LISREL 8.3. The cutoff used to include items in a factor was at 0.40 or higher. The strategy of combining confirmatory factor analysis in an exploratory fashion and structural equation modeling techniques, specifically indices of fit to determine the underlying structure of differential treatment was chosen instead of eigenvalues or scree plots (see Tabachnick & Fidell, 2001). This way, given the particular data, greater precision is achieved when establishing the best factor solution.

To determine the acceptability of the models tested, we defined a priori a set of specific criteria. First, given various indices of absolute and relative fit, we stipulated that the goodness-of-fit-index (GFI), the comparative fit index (CFI), and the non-normed fit index (NNFI) of the models tested should be higher than 0.9. In addition, the root square error of approximation (RMSEA) should be lower than 0.05. Finally, the models should present acceptable Cronbach's Alphas (> 0.75) and be both highly interpretable and parsimonious (see Bentler & Mooijart, 1989).

Results point out that the unidimensional model provided a poor fit given its low absolute and relative fit indices (GFI = 0.89; RMSEA = 0.06; CFI = 0.87; NNFI = 0.85), although its internal consistency was very high ( = 0.87). An alternative bidimensional model of the perceived differential treatment provided much better indices of goodness-of-fit (GFI = 0.93; CFI = 0.93; RMSEA = 0.04; NNFI = 0.93) than the unidimensional model and presented acceptable indices of internal consistency (Factor 1 = 0.80 and Factor 2 = 0.79). Lastly, the three-factor solution showed very similar indices of absolute (GFI = 0.93 and RMSEA = 0.04) and relative (NNFI = 0.94 and CFI = 0.95) fit to those presented by the bidimensional model. However, this improvement in fit was coupled with lower internal consistency indices in the three factors obtained (Factor 1 = 0.77; Factor 2 = 0.76; and Factor 3 = 0.64). Therefore, the bidimensional model was chosen among the three factor solutions because (a) it provided a better fit of the data; (b) it offered acceptable internal consistency indices; and (c) it represented a more parsimonious and interpretable factor solution. Correlation between factors 1 and 2 was 0.76 when unique error was controlled. Loadings for the two-factor solution are presented in Table 2.

The bidimensional model included 17 items in total, and each of its two factors explained 19% of the total variance.$^2$ The first factor solution, comprising 9 items, relates mostly to perceived experiences of discrimination among students in non-class situations on campus, some of them consisting of overtly hostile behaviors. The situation with the highest loading on this factor was one depicting a student accusing a minority student of stealing an item in a dorm because of her minority status.

TABLE 2
Factor Loadings of the Differential Treatment Questions Using Varimax Rotation

| Questions | Factor 1* | Factor 2** |
|---|---|---|
| 1. Student accused minority student for item stolen | 0.674 | |
| 2. Student's father surprised when finding out about a roommate of color | 0.671 | |
| 3. Ethnic minority students are denied entrance to a party | 0.657 | |
| 4. Minority students are displaced in cafeteria | 0.652 | |
| 5. Student hides her relationship with a student of color | 0.582 | |
| 6. Minority students responsible for making noise in dorms | 0.548 | |
| 7. Student describes musician from a minority group stereotypically | 0.523 | |
| 8. Minority student treated with hostility in a party | 0.516 | |
| 9. Housing department does attend to minority student's complaints | 0.483 | |
| 10. Professor ignores students of different backgrounds | | 0.682 |
| 11. Professor treats groups stereotypically | | 0.676 |
| 12. Professor ignores female student in class | | 0.650 |
| 13. Professor calls minority student expert | | 0.626 |
| 14. Professor ignores minority student's participation in class | | 0.555 |
| 15. Student does not know how to integrate minority students in class discussions | | 0.530 |
| 16. Students impressed with minority student's answer | | 0.521 |
| 17. Professor becomes impatient with a female student | | 0.516 |

**Perceived differential treatment in campus-related social situations*
***Perceived differential treatment in student-faculty academic situations*

Other items included in this factor are minority students being denied entrance to a party, displaced in a cafeteria, treated with hostility at a party, and accused of making noise in dorms.

The second factor clustered a group of eight situations. These situations depicted classroom interactions between students, instructors, and other peers. Most of the situations involved passive acts of discrimination, such as ignoring a minority student's contribution in class or the use of ethnic/race stereotypes. The situation that loaded highest on this factor described a professor paying attention to students of one ethnic group while ignoring students of another ethnic group. Other items in this factor included professors becoming impatient with students and peers impressed by minority students' answers.

To summarize, the two factors identified demonstrated acceptable reliability and explained equal proportions of variance. More specifically, the first factor described campus-related social situations, whereas the second factor described student-faculty academic situations.

### *Inferential Statistics for the Dependent Variables by Ethnic Group and Gender*

A 2 x 4 between-subjects multivariate analysis of variance (MANOVA) was performed on four dependent variables: perceived differential treatment in student-faculty academic situations, perceived differential treatment in campus-related social situations, appraisal of the degree of offensiveness, and discrimination described in the vignettes. Independent variables were gender (male and female) and ethnic group (African-American, Caucasian, Hispanic, and Asian-American). Higher scores represented higher presence of the measured variables (e.g., higher frequency of perceived discrimination in a given setting).

A multivariate omnibus test based on Wilk's criterion (see Tabachnick & Fidell, 2001) showed that the four combined dependent variables were significantly affected by both gender, $F$ (4, 260) = 6.13, $p = 0.002$, and ethnic group, $F$ (4, 260) = 3.20, $p < 0.001$, but not by their interaction, $F$ (12, 260) = 0.98, ns. To further investigate the effect of each main effect on the individual dependent variables, a series of univariate analyses of variance was computed. A Bonferroni type of adjustment was made for inflated Type I error rate. According to Tabachnick and Fidell, it is possible to assign a specific alpha level for each dependent variable "so that alpha for the set of [dependent variables] does not exceed some critical value" (2001, p. 349). Given that there were four dependent variables, each of them was set at 0.01 alpha level, resulting in an overall alpha for the set of four dependent variables at 0.39, which is less than the accepted critical alpha of 0.05.

An univariate test performed for gender indicated that female students scored significantly higher than male students in their appraisal of degree of offensiveness [$F$ (1, 263) = 8.99, $p < 0.003$]. In addition, female students were significantly more likely than male students to perceive the depicted situation manifested in the vignettes as discriminatory [$F$ (1, 263) = 14.58, $p < 0.001$]. No other univariate effects between gender groups were found for perceived differential treatment on campus-related social situations.

Univariate tests performed for ethnic group showed a significant effect [$F$ (3, 263) = 7.34, $p < 0.001$], only for perceived differential treatment experienced in student-faculty academic situations. Tukey's honestly significant difference (HSD) tests were conducted to test differences across ethnic groups in "perceived differential treatment in student-faculty academic situations." Tukey comparisons showed that African American students perceive more differential treatment in academic settings than Caucasian, Hispanic, and Asian students (*Ms* = 18.71, 14.91, 13.05, and 14.85, respectively). No significant differences on "perceived differential treatment in student-faculty academic situations" emerged among students belonging to these latter three ethnic groups.

### *Relationship Between Experiencing Differential Treatment and Appraisal of Degree of Offensiveness and Discrimination*

Pearson product-moment correlations were computed to examine the relations between experiencing differential treatment and appraisal of degree of offensiveness and discrimination. As presented in Table 3, the degree to which students rated having experienced events of differential treatment in academic settings was positively associated with having experienced events of differential treatment in social contexts $r = 0.62$, two-tailed). Additionally, results indicated that both degree of offensiveness and discrimination manifested in the vignettes were highly correlated ® = 0.86, two-tailed). Interestingly, perceptions of differential treatment that took place in both academic and social settings were unrelated to how students rated the degree of offensiveness and discrimination depicted in the vignettes (see Table 3).

## *Discussion*

The results of this study are consistent with previous research regarding the pervasiveness of discrimination in college environments (Ancis, et al., 2000; Chang, 2000; Gossett et al., 1998; McCormack, 1995, 1998; and Phenice & Griffore, 1994). Findings suggest that African American students experience, on average, more incidents of differential treatment in college-related situations than their Hispanic, Asian, and Caucasian classmates.

Confirmatory factor analysis for model generation (Jöreskog, 1993) of the structure of differential treatment experienced by college students revealed two related factors. The first factor described situations of differential treatment in campus-related social situations and comprised various types of events (e.g., parties, sport events), contexts (e.g., dorms, cafeterias), and actors (e.g., parents, administrative personnel). The sec-

TABLE 3

Pearson-Product Moment Correlations Among Frequency of Differential Treatment, Degree of Offensiveness, and Degree of Discrimination being Manifested in the Situations (N = 322)

| | 1 | 2 | 3 |
|---|---|---|---|
| 1. Differential treatment in student faculty academic situations | — | | |
| 2. Differential treatment in campus-related social situations | 0.62** | — | |
| 3. Appraisal of degree of offensiveness | 0.09 | 0.08 | — |
| 4. Appraisal of degree of discrimination manifested | 0.09 | 0.10 | 0.86** |

**$p < 0.001$ (two-tailed)

ond factor depicted situations of differential treatment that occurred in the classroom involving peers and faculty. These factors are somewhat similar to Nora and Cabrera (1996) findings of three dimensions of perceptions of discrimination: climate on campus, prejudiced attitudes of faculty and staff, and experiences in the classroom.

The study shows that both factors were able to capture different dynamics of discrimination despite being highly correlated ® = 0.62, two-tailed). Specifically, no significant differences were found among students regarding differential treatment experienced in socially related situations. Research suggests that minority students are more likely to socialize with students from their same racial and ethnic group and other minority groups, who often function as a support network, than they do with Caucasian students. Furthermore, Ancis et al. (2000) reported that African American and Latino students expressed a higher degree of comfort with both racially and ethnically similar and different faculty and students than do Caucasian students.

The results also indicate that females rate the situations higher for both the "degree of offensiveness" and the "degree of discrimination" manifested. Possible explanations for these findings are found in a study by Hoxter and Lester (1994), which examined differences in racial attitudes as a function of gender. Using undergraduates as their sample, they found that women displayed less prejudice than men in forming friendships and living in the same neighborhood with people of color. In a related study, findings revealed that men hold fewer tolerant racial attitudes and admit to more acts of discriminatory behavior than do women (Qualls, Cox, & Schehr, 1992). The authors note several hypotheses for this gender disparity. One hypothesis is that because women are often the targets of discrimination, they can better empathize and be sensitive to the trials of belonging to an outgroup. Additionally, they argue that the nurturing quality identified with women promote attempts toward racial accord. It could also be said that women are perhaps more likely to think about how other people feel, which has been found to be associated with higher empathy (Batson, Early, & Salvarani, 1997). These reasons may help explain the findings of the current study. For instance, even though Hispanic women reported the lowest mean for "frequency of experience" among the groups, they report the second highest mean for both the "degree of discrimination" and the "degree of offensiveness" being manifested.

Interestingly, the lack of correlation found between experiencing differential treatment and appraisals of "offensiveness" and "discrimination," also reported by Branscombe, Schmitt, and Harvey (1999), suggest that participants do not use such perceptions to report events of past discrimination. Furthermore, this finding indicates that students may be reporting accurate events of differential treatment instead of biased perceptions created by their appraisals or attributions about such events.

Overall, African Americans reported the highest frequency of differential treatment, followed by Asians and Hispanics. Furthermore, in academic-class settings African American students reported being treated differently by their peers and professors more frequently than other groups did. These findings are congruent with the findings of many other studies (Ancis, et al., 2000; Fisher & Hartmann, 1995; McCormack, 1995). These studies have found that in general, African American students experience differential treatment by faculty, teaching assistants, and students in overall campus situations. Researchers have suggested that African Americans tend to experience more discrimination because they stand out more as a minority group (Eimers & Pike, 1997; Freeman, 1997). The more distinct one is physically from others, the more likely others may see one as "out of the group" (Keith & Herring, 1991). Consistently, the darker the color of one's skin, the higher the probability of being discriminated against (Wyatt, 1997). Furthermore, the fact that no significant differences were found for Hispanics and Asian Americans may help support the argument that these groups may not necessarily experience discrimination but pressure to conform to existing stereotypes (Ancis et al., 2000).

The two emerging factors need to be studied further and replicated. Future research should include a larger sample size of minority students. In addition, a comparison of private and public colleges should be made, assuming that such students experience different degrees of contact with students of color. Urban public institutions enroll a higher number of minority students than urban private institutions, therefore exposing their students to a more diverse student body.

Future research should also address specific limitations of this study. One concern is the snowball sampling technique used to recruit 30 students for the first interview. They identified situations that were used to develop the vignettes. In future studies, researchers may also want to measure racial identity development (Cross, Parham, & Helms, 1991) and acculturation (Landrine, 1996; Landrine & Klonoff, 1996). It is possible that students who shared similar stages of racial identify development may have constituted a high portion of the interview group. Landrine and Klonoff (1996) found that African Americans who are more acculturated into the mainstream white culture are less likely to perceive discrimination. This issue is important because the composition of colleges may facilitate either one or the other acculturation style.

Another concern is related to the veracity of the students' reports about experiencing differential treatment. Other authors (Feldman-Barret & Swim, 1998; Landrine & Klonoff, 1996; Shibazaki, 1999) have raised the same issue and pointed out the difficulty of determining whether participants actually experienced discrimination or not. Nevertheless, borrowing some ideas from Landrine and Klonoff, we argue that participants are reporting true experiences given that (1) findings are consistent with other studies related to discrimination or differential treatment in colleges; (2) participants (especially African Americans and females) were able to make distinctive, non-random, and non-extreme reports of differential treatment; and (3) other self-reported measures used in psychological research assume that participants are honest about their responses. Additionally, it was found in this study that appraisals of offensiveness and degree of discrimination manifested in specific events are not related to self-reports of differential treatment involving the same events. Therefore, we are confident that results are portraying the experience of differential treatment among college students.

Despite these concerns, this study was an attempt at identifying, from the students' perspective, specific sources and college-related situations in which they perceived differential treatment and differences among racial groups. Research studies (e.g., Chang 2000; Eimers & Pike, 1997) have indicated that students of color have unique sets of concerns and needs, including the need for more diverse faculty and mentoring and support systems to assist them in adapting to predominantly Caucasian campuses. Assessing the institution's racial climate (Sedlacek, 1995) and understanding students specific experiences and contextual variables of differential treatment are important steps towards addressing the issue and designing programs and services to meet the needs of students (American Psychological Association, 1993). Sedlacek and Brooks (1976) proposed a 6-stage model for the elimination of racism in educational settings, which is based on researching the issue from identifying and understanding racial differences, racism, and racial attitudes to setting goals and developing strategies for change. Such a research-based model may assist institutions in understanding the problem and addressing it. Specific actions have also been suggested, such as promoting racial harmony through educational programs and ensuring students of all ethnic and racial backgrounds that their interests, safety, and comfort are of great importance to the university community (Farrell & Jones, 1988). Efforts to recruit and retain minority students and ethnically diverse faculty members and to integrate topics of human diversity within the liberal arts curriculum may well serve academic communities in providing a more harmonious college experience for all students (Suarez-Balcazar, Durlak, & Smith, 1994). Much work and research is needed, though, to identify the extent of the problem and contextual variables implicit in experiences of discrimination.

## Notes

[1] Because the three confirmatory factor analyses included a different number of items in their final solutions, they do not represent nested models and cannot be directly compared through their associated Chi-square values.

[2] The original scale of perceived differential treatment included 20 items. However, in the two-factor solution, two items were excluded due to their low factor loadings, and a third item was excluded because it did not present a logical connection with its specific factor.

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# Faculty and Administrative Support for Institutional Effectiveness Activities

## A Bridge Across the Chasm?

### *Introduction*

In his recent book on "management fads" in higher education, Robert Birnbaum (2000) traces the life-cycles of management strategies in colleges and universities over the past four decades, focusing on the reasons why they emerge and fail, as well as how they can be used productively. Two points Birnbaum emphasizes have particular relevance for students of the administration, governance, and stature of higher education in the United States: First, management strategies aimed at improving institutional operations and performance are typically rooted in a broader context. The adoption of management strategies typically occurs because of external pressures on colleges and universities to improve their performance or accountability. Second, Birnbaum argues that one of the most significant reasons that managerial strategies fail is that they do not succeed in attracting the allegiance or support of large numbers of institutional administrators or faculty. Management fads die fairly predictable deaths because they rarely become a shared platform for improving institutional operations and performance.

The predictable failures of management fads have not eradicated nor diminished pressures to use information for institutional improvement

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and accountability in higher education. Peter Ewell (1990; 1998) reports that a "culture of accountability" has enveloped American higher education. The higher education community has an increased interest in responding to rising demands for accountability by generating information that can inform internal planning and quality improvement efforts, as well as inform external audiences. The persistence and power of the external pressures that Birnbaum and Ewell identify suggest a need to understand why managerial strategies tend to fail and how they can assist institutions in addressing the challenges of resource management and quality assurance. Despite the lack of viable alternatives to "management fads," higher education faces the task of responding to the internal and external social forces that engender pressure for change and accountability. This means in part that higher education must understand the impetus and the nature of support for strategies aimed at institutional improvement and accountability.

Pressure to respond to the external demands for improvement and accountability generally falls on accrediting agencies, as well as individual colleges and universities. As a major conduit between institutions and the policy-making community in the United States, regional accrediting agencies helped institutionalize and operationalize the "new accountability" in higher education through accreditation criteria and review processes that require institutions to collect, format, report, and use information to improve and demonstrate the effectiveness of their programs and services. The term "institutional effectiveness," promulgated by the Southern Association of Colleges and Schools, is interchangeable with a number of monikers for continuous improvement processes, such as "quality assurance" and "quality enhancement." The specific initiatives included under these rubrics typically encompass activities such as student outcomes assessment, academic program review, strategic planning, performance scorecards, performance benchmarking, and quality measurement, each of which has numerous manifestations in academia. Despite variations in terminology, colleges and universities accredited by any one of the six regional accrediting agencies must demonstrate that they have designed and implemented acceptable processes of institutional effectiveness.[1]

Evidence that institutional effectiveness activities have actually improved institutions is sparse, but there is accumulating evidence of barriers to their successful implementation. Among the barriers are lack of sustained attention by institutional leadership, limitations of assessment tools, poorly designed systems to use assessment results, and the lack of faculty commitment (Ewell, 1989; Palomba & Banta, 1999, pp. 53–71). Even as institutional effectiveness activities have become institutionalized in American higher education, there is only a thin veneer of support for them (Banta, 1993; Gray & Banta, 1997; Palomba & Banta, 1999).

### *Faculty and Administrative Perspectives: A Chasm?*

Gaining the interest and support of institutional constituents, particularly faculty, is a major challenge colleges and universities face in designing and implementing institutional effectiveness activities. Accreditation criteria and review processes require broad campus participation in institutional effectiveness activities. For example, criteria and interpretive guidelines for the Southern Association of Colleges and Schools (1998) clearly call for participatory initiatives, involving faculty, staff and administrators. Without an institutional consensus on the importance of institutional effectiveness activities, including faculty participation and support, the successful integration of institutional effectiveness activities is unlikely (Friedlander & McDougall, 1990, p. 99; Morse & Santiago, 2000, p. 32). Research literature and policy studies on the implementation of institutional effectiveness programs in colleges and universities suggest that faculty are less likely to support institutional effectiveness initiatives. Nichols (1995) cites faculty resistance as the most significant factor impeding the implementation of institutional effectiveness activities.

Colleges and universities may initially appear as havens of consensus to those on the outside, but cooperative relationships between faculty and administrators are sometimes difficult to achieve. Campbell and Slaughter (1999) note that "some tension between faculty and administrators has been accepted as an enduring part of academic life" (p. 310). The Pew Higher Education Research Group (1996) suggests that a growing sense of disconnection and division among faculty and administrators at colleges of all types has weakened their ability to work collectively. Administrators are more likely to interact with external stakeholders and, thus, are more likely to be aware of and receptive to external aspirations for higher education. Academic administrators are caught between societal pressures for change and the faculty's wish to maintain the academy in the form they have known. In sharp contrast to faculty, administrators believe that the institution they serve revolves around a nucleus of external forces that greatly affect the institution's continued vitality (Lucas, 1996; Rawls, 1998; Schilling & Schilling, 1998; Ryan, 1993).

Among faculty, however, there are concerns about the ability of campus administrators to effectively implement institutional effectiveness activities. Birnbaum (1989), Lewis and Smith (1994), and Volkwein and

Malik (1997) demonstrate that faculty tend to have more trust in the academic culture than in the administrative hierarchy. Boyer (1990) argues that many faculty are suspicious of administrators, in part, because of what they consider a lack of clear vision and commitment to the future of the institution by administrators. Administrators and their management fads come and go, but faculty remain committed to their disciplines and the educative mission of their institution. Disagreements over roles, rights, and responsibilities, and lack of confidence in campus administrative and governance structures, appear to frustrate implementation of institutional effectiveness activities (Klein & Dunlap, 1994, p. 202; Pew Higher Education Research Group, 1996).

Expectations for institutional effectiveness activities are often presented by administrators as common sense appeals for improvement and accountability, yet faculty just as often see them as (1) attacks on tenure and academic freedom, (2) attempts to reduce faculty lines, (3) selling out to business ideologies, and/or (4) caving in to governmental bureaucracies (Ryan, 1993, pp. 75–6). Faculty work is undergirded by a commitment to academic freedom, their academic disciplines, and a sense of autonomy, all of which mitigate enthusiasm for introducing accountability systems into their academic work. "[Faculty] feel accountable to a body of knowledge, to a tradition of inquiry, and to accepted methods of investigation and instruction. In the minds of faculty, these obligations are different than those that other enterprises exact from their staffs" (Pew Higher Education Research Group, 1996, p. 6).

Faculty are also concerned that institutional effectiveness activities adumbrate the loss of control over the curriculum. Engelkemeyer (1995, p. 142) observes that institutional effectiveness activities inevitably require consideration and accommodation to the perceptions of higher education's many internal and external constituents. While they do not inherently wrest control of the curriculum from faculty, institutional effectiveness activities imply the need to develop and modify curricula according to input, data, and information from constituents such as students, policy makers, and employers. Ohmann succinctly states the problem: "Accountability entails measurement, in short, and that provokes academic resistance" (2000, p. 26).

### *Factors Affecting Perceptions Toward Institutional Effectiveness*

The foregoing suggests that there is much literature about institutional effectiveness activities that alleges that faculty are less likely to support these initiatives, but the empirical research identifying perceptions held by faculty and administrators is limited. The literature related to faculty and administrative perceptions about institutional effectiveness is overwhelmingly anecdotal and polemical, but what does exist suggests that faculty and administrative support for institutional effectiveness activities may be affected by four variables:

*Internal versus external motivation.* Higher education has a long history of resisting outside pressure to change (Benjamin, 1994; Bok, 1986; McConnell, 1992). The emphasis on autonomy from external control and oversight affects the degree to which faculty and administrators view the importance of institutional effectiveness initiatives. The successful implementation of institutional effectiveness activities within colleges and universities poses a conundrum: institutional effectiveness activities cannot be a mechanical response to external edicts, yet, the impetus for institutional effectiveness activities largely came from external constituents, such as state coordinating boards, accreditation agencies, governors and state legislatures. If campus constituents perceive institutional effectiveness activities as undertaken merely to satisfy outside groups, they will likely attribute low levels of importance to them. (Engelkemeyer, 1995; Seymour, 1993).

Understanding the resistance to external pressures for accountability may be particularly complex with regard to faculty. Chambliss notes that faculty members have chosen their careers, in no small part, because of the high value they place on autonomy. Faculty desire "maximal freedom, and few distracting, mindless, menial required tasks . . . faculty generally resent being told what to do" (1994, pp. 2–3). Faculty who view their participation in institutional effectiveness activities as menial work or as keeping the accountability wolves at bay may not be fully invested in the process and, thus, regard it as being unrelated to the core activities of the institution. Ideally, institutional effectiveness activities are motivated by a sense of internal dedication to the improvement of the institution. Seymour (1993) and Lewis and Smith (1994) argue that emerging internal motivators for institutional effectiveness activities are likely to elevate internal commitment to outcomes assessment and other data-based approaches to program planning and development. Among the list of internal motivators identified in their writings are (1) increased competition for students among both traditional and nontraditional institutions, (2) projections of limited growth in resources available to higher education, (3) a more consumer-oriented and knowledgeable pool of students, (4) public perceptions of dissatisfaction with higher education, (5) changing delivery methods, and (6) increased interest in organizational improvement strategies such as total quality management and continuous quality measurement.

*Depth of implementation.* The depth of implementation of institutional effectiveness activities may also influence or be influenced by perceptions about their importance. Faculty and administrators who believe only minimal effort is needed to meet minimal standards for the institutional effectiveness are likely to attribute lower levels of importance for them. Perceptions of the importance of institutional effectiveness can be affected to the extent to which these processes have been integrated into the overall fabric of the institution and become more enduring than the individuals who champion them. Thomas (1997) argues that administrators in two-year colleges report more support than faculty because they believe that institutional effectiveness activities are more deeply implemented. Clarke (1997) suggests that administrators are more likely to support institutional effectiveness activities because they are more likely to believe that these activities actually affect the institution. However, the direction of causality remains an open question, since beliefs about the importance of institutional effectiveness activities may affect the extent of their implementation.

*Definition of quality.* Over the past fifteen years, accrediting agencies, state coordinating boards, and the higher education policy community have promulgated an *outcomes-based* definition of quality (Chaffe & Scherr, 1992; Lewis & Smith, 1994). Increasingly, institutional quality is defined by the extent to which the institution fulfills its mission or achieves its strategic goals. Outcomes measurement undergirds institutional effectiveness activities. If faculty or administrators hold the view that quality is essentially limited to inputs such as endowments, number of books in the library, and physical facilities, they are likely to attribute less importance to institutional effectiveness initiatives that place emphasis on educational outcomes (Bogue & Saunders, 1992; Bryan, 1996; Frielander & MacDougall, 1990; Sims & Sims, 1995).

Demonstrating quality under the *resources* conception allowed administrators and staff to work in virtual isolation from the faculty on accreditation self-studies and reports. Faculty support and participation are unnecessary to simply record and report inputs. Outcomes-based institutional effectiveness initiatives require extensive faculty and administrative support and involvement. An outcomes-based approach cannot be pursued merely by documenting that the *conditions* necessary for quality educational experiences to take place are present. Today, institutions must demonstrate the impact of instruction on student learning and that faculty members are actually using the results of these assessments to improve instruction. The participatory nature of institutional effectiveness activities is particularly challenging when participants hold different conceptions about the meaning of quality. Research suggests that administrators are more likely to support institutional effectiveness activities because they are more likely to be receptive to the outcomes-based conception of quality promoted by accrediting agencies and state coordinating boards (Abraham-Ramirez, 1997; Clarke, 1997; Ewell, 1991; Schilling & Schilling, 1998).

*Level of involvement.* Both researchers and commentators suggest that faculty involvement is an integral element of an institution's ability to define, measure, promote and improve institutional effectiveness activities. Faculty receptivity to change and innovation is predicated upon their involvement, but research demonstrates that the prevalent practice at colleges and universities is to elevate the role of administrators at the expense of faculty participation (Burgher, 1998; Richardson, 1988). Higher education contains little, if any, history of successful top-down initiatives because faculty ownership is a key element of change in institutions of higher education, but outcomes assessment began on many campuses as a top-down approach (Schilling & Schilling 1998).. Klein & Dunlap emphasize the importance of collaborative approaches to institutional effectiveness: "When change originates with administrators, it is easy for the change process to evolve into an 'us and them' situation where nobody is a winner. Thus it is important for administrators to involve faculty early in the change process and in a collaborative manner" (1994, p. 2). Level of involvement was identified as an important factor in the successful implementation of institutional effectiveness programs in studies by Thomas (1997), McClure (1996), and Bonvillian and Dennis (1995). Those who participate more intensely in institutional effectiveness activities are more likely to express support for them.

## *Research Methodology*

*Research questions.* This study attempts to address two important questions about the development and implementation of institutional effectiveness activities in higher education. First, are there significant differences between faculty and administrators in their attitudes toward the importance of institutional effectiveness activities? The independent variable in the research is the status of the respondent, whether faculty or administrator. Faculty were identified as those full-time college and university employees whose primary duty is classroom teaching and/or research. Academic administrators were defined as employees who hold the position of president, provost, chancellor, academic vice-president or dean of instruction, or dean of an academic unit or division. The dependent variable, perceived importance of institutional effectiveness activities, was defined as the degree to which respondents report that the institutional effectiveness activities of the institution are important.

The second research question is, what factors help us understand faculty and administrative support for institutional effectiveness activities? The literature review suggests that faculty and administrative support may be affected by four variables:

1. Perceived Motivation, or the extent to which institutional effectiveness activities are motivated at an institution primarily by internal interests in quality improvement, instead of the need to respond to external mandates.
2. Perceived Depth of Implementation, or the extent to which institutional effectiveness activities are actually implemented and promote change at an institution.
3. Perceived Definition of Quality, or the extent to which the prevailing view of quality at the institution emphasizes educational outcomes instead of resource inputs.
4. Reported Level of Involvement, or how institutional participants view their personal involvement in the development and implementation of institutional effectiveness activities.

The objective of the research was to determine the impact of these four variables on the relationship between respondent status and support for institutional effectiveness activities.

*Population and sample.* The research questions were addressed through a mailed survey distributed to faculty and academic administrators during Fall 2000 at the 168 institutions that were reviewed by evaluation teams of the Southern Association of Colleges and Schools (SACS) between September 1998 and May 2000 for either initial accreditation or reaffirmation of accreditation. SACS was one of the earliest higher education associations responding to the call for institutional effectiveness activities. SACS adopted the term "institutional effectiveness" in 1985 to reference efforts that involve the collection of data about institutional performance that may be used to improve programs and services, as well as document performance in the accreditation review process. The infusion of specific institutional effectiveness statements into SACS *Criteria for Accreditation* as recently as 1998 was intended to ensure that the concepts of institutional effectiveness echo throughout institutional self-management, an expectation that differs in terminology but not intent from the other five institutional accrediting agencies and many of the program accrediting agencies in the United States. Although a study that includes participants from a region controlled by one institutional accrediting agency limits the ability to generalize results, it permits the use of institutional effectiveness terminology on a questionnaire that is consistent, understandable, and familiar within the region.

The population for the study consisted of (1) full-time faculty who had served on institutional accreditation steering committees and (2) academic administrators at the dean's level or higher at institutions that hosted SACS accreditation site team visits between September 1998 and May 2000. Faculty respondents were identified through the SACS liaisons and other contacts at each institution. Academic administrators were identified through the *2000 Higher Education Directory.* Through participation in self-study steering committees, faculty respondents were actively involved in evaluating the institutional effectiveness process and documenting findings for outside evaluators. The rationale for selecting this population centers on the need to identify respondents who have basic and current knowledge about SACS institutional effectiveness criteria as well as institutional effectiveness processes at their institution. Selection of faculty and academic administrators from the SACS region helps ensure consistency in the working knowledge of institutional effectiveness accreditation terminology and practices, since each institution included in the population had to analyze their compliance with the same criteria statements. However, it also restricts the ability to generalize results beyond the southern region of the United States.

The population consisted of an actual respondent pool of 1232, including 794 faculty members and 541 academic administrators. No sampling procedures were necessary since all potential respondents were included. A total of 386 faculty and 294 academic administrators responded to the survey. The 54.8% response rate for faculty and the 54.3% response rate for academic administrators surpassed an acceptable response rate of 50% and far surpassed the minimum number of acceptable respondents (364) established by a power analysis. A test for response bias indicated no significant relationship between respondent group and response to the questionnaire.[2] Approximately 51% of the faculty respondents indicated that their unit or discipline was accredited by a specialized accrediting agency. Eighteen percent of the faculty indicated that they had participated as an evaluator on an institutional accreditation visit. However, 41% of the academic administrators reported experience as an evaluator for a regional accrediting agency. Faculty respondents had worked, on an average, slightly more than 15 years at their present institution and had worked in higher education for an average total of about 19 years. The academic administrators reported employment at their present institution for an average of 14.32 years and had worked in higher education for an average total of 22.45 years.

The survey instrument included five indices designed to yield information relevant to the variables included in the two research questions. The five indices were:

1. Perceived Importance of Institutional Effectiveness Index.
2. Perceived Institutional Motivation for Institutional Effectiveness Index.
3. Perceived Definition of Quality Index.
4. Perceived Depth of Implementation Index.
5. Reported Personal Level of Involvement Index.

The indices, which appear in an Appendix to this article, were developed specifically for this research.[3] Each index included from nine to eighteen Likert scale questions. The indices attempted to capture the salient features of each of the variables and create operational measures that, when combined, adequately addressed each concept. Items in each index were scored so that the higher the number assigned to a response, (1) the more positive the response toward institutional effectiveness, (2) the more the respondent perceived institutional improvement as the primary motive for institutional effectiveness, (3) the more the respondent believed an outcomes view of quality prevailed at the institution, (4) the deeper the implementation, and (5) the greater the individual's involvement in institutional effectiveness.[4] Questionnaire items for the four scales are identified as an attachment to this manuscript. The instrument also provided an opportunity for respondents to respond to open-ended questions about the implementation of institutional effectiveness activities, including suggestions for how to improve institutional effectiveness activities.

### *Findings*

The data in this study were analyzed using parametric statistical methods. The large size of the sample yielded a normal distribution compared to the entire universe of faculty and administrators at institutions accredited by SACS. Table 1 summarizes the results for the first research question and presents comparisons between faculty and administrators on the four control variables. A 2-tailed $t$-test with independent samples revealed that a significant difference exists between faculty and academic administrators perceptions of the importance of institutional effectiveness, $t(582) = -7.00$, $p < 0.001$. The mean response for academic administrators was 4.27 on the 5-point scale, while the mean for faculty was 3.90. Thus, the survey data indicate that academic administrators attribute greater importance to institutional effectiveness initiatives than do faculty. However, it is important to emphasize that both administrators and faculty reported generally positive perceptions of institutional effectiveness activities.

Similar findings were apparent for each of the control variable indices, also summarized in Table 1. The data suggest that academic administrators are more likely than faculty to (1) view institutional effectiveness activities as internally motivated, (2) view institutional effectiveness activities as more deeply implemented, (3) define quality as student outcomes-based, and (4) perceive greater levels of personal involvement. The differences were statistically significant at the $p < 0.01$ level for the comparison on each index. However, once again, faculty responses were also clustered toward the more positive pole of each index.

A correlation and hierarchical regression analysis addressed the second research question, which pertained to the explanation for differences between faculty and academic administrators on the importance of institutional effectiveness activities. The correlation analysis summarized in Table 2 reveals that each of the control variables correlates significantly ($p < 0.01$) and strongly (correlation coefficients range from 0.640 to 0.779) with each other. The control variables correlate significantly ($p < 0.01$) and strongly (correlation coefficients range from 0.700 to 0.778) with the dependent variable, perceived importance of institutional effectiveness activities. The dependent and control variables also correlate significantly ($p < 0.01$) but modestly (correlation coefficients range from –0.219 to –0.301) with the independent variable, respondent status as a faculty or academic administrator.

A hierarchical regression analysis on the dependent variable was then performed using three sets of variables: the independent variable, the four control variables, and four interaction variables. The regression analysis should determine if there is a difference between faculty and academic administrators on the perceived importance of institutional effectiveness activities after removing the variance from the control variables (Cohen & Cohen, 1983). In this analysis, hierarchical regression is

TABLE 1

Results of T-Tests Comparing Faculty and Administrators on Institutional Effectiveness Activities Variables

| Index | Faculty $\bar{X}$ | Administrator $\bar{X}$ | t | df | p |
|---|---|---|---|---|---|
| 1. Perceived Importance Institutional Effectiveness Index | 3.90 | 4.27 | –7.00 | 582 | <0.01 |
| 2. Perceived Motivation Index | 3.39 | 3.68 | –6.18 | 592 | <0.001 |
| 3. Perceived Depth of Implementation Index | 3.39 | 3.68 | –5.58 | 572 | <0.001 |
| 4. Perceived Definition of Quality Index | 3.57 | 3.86 | –6.25 | 593 | <0.001 |
| 5. Reported Level of Involvement Index | 4.02 | 4.43 | –7.91 | 543 | <0.001 |

TABLE 2

Means, Standard Deviations, and Intercorrelations for Importance of Institutional Effectiveness Activities and Predictor Variables

| Variable | *M* | *SD* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Importance of IE Measure | 4.09 | 0.682 | 0.778** | 0.704** | 0.726** | 0.700** | –0.272** | –0.084* | –0.133** | –0.144** | –0.139** |
| Predictor Variable | | | | | | | | | | | |
| 1. Motivation | 3.50 | 0.769 | — | 0.732** | 0.728** | 0.641** | –0.267** | –0.036 | –0.123** | –0.143** | –0.147** |
| 2. Depth of Implementation | 3.93 | 0.699 | | — | 0.779** | 0.718** | –0.219** | –0.040 | –0.004 | –0.083* | –0.080* |
| 3. Definition of Quality | 3.72 | 0.579 | | | — | 0.640** | –0.250** | –0.073* | –0.094* | –0.083* | –0.132** |
| 4. IE Involvement | 4.23 | 0.669 | | | | — | –0.301** | –0.133** | –0.144** | –0.186** | –0.092* |
| 5. Faculty/Academic Administrator | 0.506 | 0.500 | | | | — | — | 0.950** | 0.963** | 0.974** | 0.968** |
| 6. Interaction Variable 1 | 1.67 | 1.73 | | | | — | | — | 0.974** | 0.978** | 0.969** |
| 7. Interaction Variable 2 | 1.91 | 1.97 | | | | | | | — | 0.984** | 0.978** |
| 8. Interaction Variable 3 | 1.81 | 1.84 | | | | | | | | — | 0.977** |
| 9. Interaction Variable 4 | 2.04 | 2.09 | | | | | | | | | — |

$*p < 0.05$ $**p < 0.01$

identical to the analysis of covariance. The purpose of the analysis of covariance is to determine the effect of one or more independent variables on a dependent variable after removing the effects of covariates, or control variables. The same analysis occurs with hierarchical multiple regression analysis by first entering control variables into the regression equation, followed by entering the independent variables.

The first step of the hierarchical multiple regression analysis tests the effect of the control variables on the dependent variable. Control variables are entered into the equation ordered by the strength of their relationship to the dependent variable. In this study, the control variables were entered in the following order: perceived motivation (0.778), perceived definition of quality (0.726), perceived depth of implementation (0.704), and personal level of involvement (0.700). The independent variable is next added into the equation, followed by the four interaction variables, which were created by multiplying the value of each of the control variables by the independent variable, following the procedure described by Cohen and Cohen (1983, p. 388). Step two of the regression analysis tests whether any significant variance is explained by the independent variable, after the control variables are entered into the prediction equation. For the analysis of covariance model to be applied validly, there should be no significant interaction effects involving the control variable and the independent variable.

Table 3 provides a summary of the hierarchical regression analysis. The table indicates that the control variables are significantly related to the dependent variable ($R^2 = 0.698$). However, the second step of the regression analysis indicated that the independent variable is not a significant predictor of perceptions of the importance of institutional effectiveness activities ($\Delta F = 0.633$, N.S.). At the third step, there was a significant change in $F$ ($\Delta F = 3.37$) when the interaction variables were added as predictors into the regression equation containing the control variables and the independent variable. The presence of a significant interaction effect means that the analysis of covariance test is not valid.

TABLE 3

Summary of Hierarchical Multiple Regression Analysis with Importance of Institutional Effectiveness Activities as Criterion Variable

| Step | Predictor Variable | $R^2$ | $\Delta R^2$ | $\Delta$F |
|---|---|---|---|---|
| 1 | Control Variables | 0.698 | 0.698 | 326.297** |
| 2 | Faculty/Academic Administrator | 0.699 | 0.000 | 0.633 |
| 3 | Interaction Variables | 0.706 | 0.007 | 3.370* |

*$p < 0.05$ **$p < 0.01$

The data clearly demonstrate that the control variables influence each other, and this influence differs for faculty and administrators.

Despite the interaction effects, meaningful analysis of the impact of the control variables on faculty and academic administrator perceptions of the importance of institutional effectiveness is possible through separate regression analyses for faculty and academic administrators (Cohen & Cohen, 1983). Separate regression analyses were thus performed for faculty and administrators, as presented in Table 4.

Each regression equation has the same dependent variable, perception of importance of institutional effectiveness, and the same four predictor variables. The data reveal that two of the control variables, perceived motivation and personal level of involvement were significant predictors for the perception of importance of institutional effectiveness for *both* faculty and academic administrators: perceived motivation (faculty = 0.404; academic administrator = 0.408) and personal level of involvement (faculty = 0.261; academic administrators = 0.248). However, the other two control variables operated differently for the two groups. Depth of implementation was a significant predictor for academic administrators ( = 0.189) but not for faculty ( = -0.061). Conversely, definition of quality served as a significant predictor for faculty ( = 0.324) but not for academic administrators ( = 0.089).

## *Discussion and Implications for Practice and Future Research*

At the heart of this research is the question of whether institutional effectiveness activities will become another ephemeral management fad or institutionalized practice, thoroughly infused in the culture of higher education. Faculty support for institutional effectiveness activities is likely to determine their fate. Without active faculty support and participation,

TABLE 4

Regression Analysis Summary for Variables Predicting Perception of Importance of Institutional Effectiveness Activities for Faculty and Academic Administrators

| | Faculty | | | Academic Administrators | | |
|---|---|---|---|---|---|---|
| Variable | *B* | *SEB* | β | *B* | *SEB* | β |
| Internal versus External Motivation | 0.375 | 0.050 | 0.404** | 0.341 | 0.043 | 0.408** |
| Depth of Implementation | −0.057 | 0.055 | −0.061 | 0.188 | 0.067 | 0.189** |
| Definition of Quality | 0.394 | 0.070 | 0.324** | 0.010 | 0.063 | 0.089 |
| Level of Involvement | 0.248 | 0.045 | 0.261** | 0.293 | 0.060 | 0.248** |

Note: Faculty adjusted $R^2 = 0.679$ ($N = 288, p < 0.01$).
Academic administrators adjusted $R^2 = 0.676$ ($N = 281, p < 0.01$).
$^{**}p < 0.01$.

institutional effectiveness activities are likely to be discarded as yet another failed management campaign. However, with the support of a critical mass of faculty, institutional effectiveness holds potential to become institutionalized in higher education. A study that explores the notion of an unbridgeable chasm between faculty and administrators regarding institutional effectiveness and identifies some explanations for existing differences between faculty and administrators should be helpful in addressing this question. If institutional effectiveness initiatives are to escape the fate of the management fads Birnbaum describes, both faculty and administrators will need to commit themselves to move these activities beyond administrative responses to external edicts and toward more deeply implemented practices in higher education.

An "us against them" framework is often used in both research literature and policy studies to describe the relationship between faculty and administrators as institutional effectiveness processes are infused into higher education. This study discovered a statistically significant difference between faculty and administrators in their perceptions about the importance of institutional effectiveness activities, but it also raises some questions about the assumption of a sharp ideological division between faculty and administrators, a point that is particularly important for those responsible for developing and maintaining institutional effectiveness programs and for ensuring the inclusion of faculty into institutional effectiveness activities. This study demonstrates that there is faculty support for institutional effectiveness activities and that this support is vitiated by several factors.

First, faculty support appears to be dependent upon the cultivation of a sense across the institution that the *primary* motivation for the implementation of institutional effectiveness activities is to improve the institution's programs and services. Consistent with the regression analysis, comments made by faculty on their questionnaires demonstrated the point that *institutional improvement* is a more compelling justification for institutional effectiveness than is *responsiveness to external mandates*. One faculty member lamented that at his institution the motivation for institutional effectiveness was simple, "SACS told the president to do it, he told us to do it." Another faculty respondent suggested that "institutional effectiveness would be much more appreciated by faculty if they were allowed to experiment with it and if it were not tied to accreditation." Still another faculty respondent suggested that faculty support could be enhanced by "stress[ing], every now and then, that institutional effectiveness is good for the college, irrespective of the external mandate from an accrediting agency."

One faculty respondent indicated his belief that institutional effectiveness activities should be centered on the culture of the institution: "To engender faculty trust and cooperation, it is vital that assessment develop in the context of the general beliefs of the institution." Of course, institutional effectiveness activities serve other, external purposes, but institutional improvement appears to be a more potent source of support for institutional effectiveness activities than responsiveness to accreditation criteria or mandates from state higher education boards. Reporting requirements from external agencies are critical to institutional accreditation and support, but are probably best viewed by the institution as secondary or subordinate to the interest in improving the institution's programs and services.

Second, these data also suggest that faculty support for institutional effectiveness activities is also likely to be increased by ensuring that faculty perceive that they are personally involved in institutional effectiveness activities. One respondent indicated that administrative openness to faculty involvement is critical to faculty support at his institution: "Our administration is sensitive and responsive to faculty involvement in decision making processes. In my opinion, it opens the door to a good system of institutional effectiveness." Another faculty member suggested that "asking people to serve on committees involving institutional effectiveness has encouraged ownership. Several have commented that they never felt as involved with the university as they do now that they have learned how the university functions."

Third, the regression analysis clearly demonstrates that the prevailing definition of quality at institutions is a significant predictor of perceptions of the importance of institutional effectiveness activities for faculty but not for academic administrators. The data suggest that faculty support for institutional effectiveness is bolstered if the prevailing definition of quality at the institution is based on *outcomes* not on resource *inputs*. One faculty member suggested that faculty support for institutional effectiveness at his institution is evident because it "evaluates the efficacy of allocated resources and (because) data is used (to guide) changes."

For administrators, support for institutional effectiveness activities was affected by perceived motivation for institutional effectiveness, reported personal level of involvement, and depth of implementation. One administrator suggested that the most important element in deepening the implementation of institutional effectiveness activities is "closing the loop":

> We initiated corrective action forms to document anything that we deem appropriate to improving institutional effectiveness. This process allows us to not only document institutional effectiveness but also stimulates the process of 'closing the loop' to ensure that we have taken corrective measures.

For other administrators, institutional effectiveness activities are most deeply implemented by tying the results or departmental follow-through to the budgeting process. One administrator recommended, "Tie performance to budgeting. Those who achieve results get more resources." Another suggested that institutional effectiveness initiatives work when administrators link "department/program plans to budget and professional development requests." Still another suggested that success is based on assurances that "the visible practice of 'funding following performance' is active and openly occurring in the life of the institution." Although depth of implementation was not a significant predictor of perceived importance of institutional effectiveness activities, the data also included faculty versions of the interest in linking performance on institutional effectiveness measures to the budget: "Faculty should be compensated or recognized in some way for good faith participation in institutional effectiveness activities." Another faculty member commented that institutions should "reward with resources those who perform or whose needs are discovered as they actively participate in institutional effectiveness for their area."

There are clearly other variables that may have an impact on the relationships discovered in this study. These should be investigated in future research. For instance, faculty in disciplines that have professional accrediting or licensing requirements may have different attitudes toward institutional effectiveness activities than faculty in those disciplines that do not. Faculty in disciplines that have accreditation, licensure and/or certification obligations might be more favorably disposed toward institutional effectiveness initiatives because of their familiarity with accountability measures.[5] Another possible explanation is that institutional type may affect faculty and administrative support; it may simply be more difficult to generate faculty attention and support for institution-wide improvement activities in organized anarchies or other institutional environments where faculty are more tightly coupled with their academic disciplines than their institutions.[6]

Future research might also include samples of faculty who are more broadly representative of the general population of faculty than the purposely skewed sample in this study. There are two limitations of this study that suggest the importance of additional studies with broader samples. First, the fact that this study looked only at faculty who were involved in SACS self-study processes raises a question about the extent to which this group, drawn from a particular regional accrediting group represents faculty nationally. SACS was a pioneer in developing assessment and institutional effectiveness concepts but has required more standardized and rule-based approaches than other institutional accrediting bodies. Thus, faculty drawn from a SACS sample may have altogether different attitudes toward the importance and implementation activities than faculty from other regional accrediting groups. However, the differences in terminology and accreditation criteria also create difficulties in creating research instruments that can be applied on a national basis. Another limitation is that faculty who have experience with accreditation self-study steering committees may have quite different perspectives on institutional effectiveness than those who have not had such experience. One faculty respondent in this study suggested that administrators hand-pick faculty representatives on institutional effectiveness committees because of their predisposition to support administrative initiatives: "Some faculty are selected over and over for input because they give the right answers—others are never asked." Faculty who agree to serve on self-study committees or otherwise participate in institutional effectiveness activities may be predisposed to support them, thus suggesting that the gap in attitudes between faculty and administrators on the importance of institutional effectiveness activities may never be completely eliminated.

Accrediting agencies and state higher education boards may be encouraged to learn that both faculty and academic administrators tend to perceive institutional effectiveness activities as important. Institutional effectiveness is clearly an important element of accreditation processes and will likely grow in importance. As institutional effectiveness activities become the cornerstone of accreditation, these research findings may help pinpoint specific factors that impact support and perceptions of importance held by faculty and academic administrators in institutions within their organizational umbrellas.

The findings may also help administrators and faculty develop a deeper consensus about the critical role of both groups in designing and implementing institutional effectiveness programs. Administrators cannot simply institute institutional effectiveness processes in isolation and expect spontaneous support from faculty. Administrators may hold responsibility for institutional effectiveness processes, but they must wrestle with gaining faculty interest and support without creating unwanted administrative duties, if the processes are to have any appreciable impact on the institution. Schilling and Schilling (1998), Banta (1993), Palomba and Banta (1999), and Ewell (1989) suggest that administrative attention to such things as clearly defining roles of participants, providing resources to learn and implement institutional effectiveness activities, and rewards and recognition are critical in generating faculty support. This study contributes this accumulating body of knowledge by discovering that (1) an outcomes view of quality, (2) depth of implementation, and (3) a primary motivation to improve the institution are important drivers of faculty support. This research provides additional empirical confirmation of arguments that appear in Ewell (1989), Banta

(1993), and Palomba and Banta (1999) on the cultivation of institutional support for assessment. Without attention to these dynamics, institutional effectiveness activities may become simply another management fad that will soon die out (Birnbaum, 2000).

One of the faculty respondents in this study commented that institutional effectiveness may have a more complex future:

> Yes, institutional effectiveness is the current buzz-word. But, like the "new math," after the froth has been dispersed, there will remain several core concepts which will be incorporated into improving the quality of higher education, as well as being incorporated into the next fad.

If either faculty or administrators do not recognize the importance of institutional effectiveness initiatives for institutional improvement and self-knowledge, it is unlikely that institutional effectiveness initiatives will succeed in improving either the operation or stature of higher education in the United States in any enduring way.

## APPENDIX

Survey Items and Design of Indices

Importance of Institutional Effectiveness Index

1. IE plays an important role in improving our institution.
2. IE will be an important component of regional accreditation well into the future.
3. Efforts to evaluate the effectiveness of our institution are worthwhile.
4. IE activities are not an important component of my job responsibilities.
5. IE is primarily the responsibility of administrators on our campus.
6. IE is a fad that will likely be replaced by another area of emphasis.
7. IE at our institution is, or would be, strengthened by active participation by faculty members.
8. Resources dedicated to IE activities are investments in the long-term health of our institution.
9. Documenting IE should be an integral element to any regional or department-specific accreditation criteria.

Internal Versus External Motivation Index

1. We mainly conduct IE activities because of accreditation requirements.
2. We mainly conduct IE activities to maintain performance-based funding.
3. Improvement of programs and services is the primary motivation for IE on our campus.
4. If there were no outside requirements or mandates, our commitment to IE activities would probably diminish.
5. Evaluating the effectiveness of our institution is a natural extension of the ideals of investigation and inquiry within the academy.
6. IE does little to affect the true quality of our institution.
7. Change happens so slowly at our institution that it's hard to specify what changes are based on particular evaluations.
8. The results of our IE process seem to be more important to outside stakeholders than to our campus community.
9. Our institution offers such quality that IE initiatives can do little to improve it.

APPENDIX (*Continued*)

Depth of Implementation Index

1. Our institution has a systematic process of IE.
2. Departmental IE goals are generally known by individuals in the departments.
3. IE is a continual process at our institution.
4. Faculty, staff, and administrators are actively involved in our IE program.
5. IE activities throughout our institution are not very interrelated.
6. Our IE process has been developed to "fit" our institution.
7. Expected educational results are clearly defined at our institution.
8. Our institution is committed to allocating resources to remedy areas of weakness found through the IE process.
9. The benefits of our IE process are clearly not worth the resources we invest in the process.
10. Procedures for assessing goal attainment are clearly stated at our institution.
11. Administrative responsibility for institutional research has been assigned at our institution.
12. Our institutional mission is central to our planning process.
13. Specific changes at our institution have occurred because of evaluation results.
14. Institutional research is an integral part of our institution's IE process.
15. All areas of our institution evaluate effectiveness (e.g., student learning, research, and service).
16. A variety of quantitative and qualitative assessment techniques are used to evaluate educational goals at our institution.
17. IE processes do little to help our institution fulfill its mission.
18. Our institution dedicates sufficient resources to IE activities.

Definition of Quality Index

1. The opinions of students (including alumni) are important in determining the quality of education at my institution.
2. Students at my institution are regarded as customers.
3. Quality at my institution is defined by how well we achieve our mission.
4. Institutional resources (i.e., buildings, volumes in library, faculty with superior credentials, endowments, reputation, price students are willing to pay, technology, etc.) are adequate indicators of our institutional quality.
5. Improving quality at my institution requires collaboration between faculty, staff, and administrators.
6. Measuring our institutional goals does not necessarily measure our educational quality.
7. The IE process at my institution is important in determining our overall quality.
8. Multiple stakeholders (e.g., employers, students, public representatives) are involved in determining what counts as "quality" in our institution.

Level of Involvement Index

1. I have participated in a review of my institution's mission statement.
2. I am highly involved in IE activities at my institution.
3. I have participated in defining specific goals for my area.
4. I have helped formulate assessment techniques to measure progress toward area goals.
5. I am not familiar with the IE plan for my area.
6. I have engaged in specific assessment exercises to aid in my institution's IE activities.
7. I have not made improvements as a result of specific assessment results from our IE activities.
8. I am not personally aware of benefits of IE activities.

## *Notes*

[1] A review of the higher education accreditation standards and procedures of the six regional accrediting agencies reveals that each has policies and/or specific accreditation criteria pertaining to institutional effectiveness, assessment, and program evaluation. The consistent presence of such accreditation criteria supports the point that the concept of institutional effectiveness has considerable formal support in higher education. The variation in terminology, however, makes a national study of faculty and administrative support for accreditation-driven institutional effectiveness initiatives extremely challenging.

[2] The analysis of response bias indicated no significant relationship between respondent group (faculty/academic administrator) and response to questionnaire, $0(1) = 0.029$, N. S.

[3] All questionnaire items were designed specifically for this research project. Thomas (1997) conducted research using two similar indices—depth of implementation and internal versus external motivation. Similarities in questionnaire items are negligible.

[4] Several of the items were reverse coded to protect against bias from response sets. The content validity of each index was established by a panel of six postsecondary education professionals who specialize in institutional effectiveness at their institutions and have served as SACS evaluators. The panel evaluated each item on the questionnaire and rated the degree to which it served as a measure of a dimension of the related variable. Panel members also rated the overall adequacy of each index as a measure of the variable. After recommended changes, the panel rated each item and index as "good" or "excellent."

The reliability of the instrument was established in the summer of 2000 through a pilot study of 32 academic administrators and 48 faculty members, who were excluded from the final sample and analysis. Data for each questionnaire item and index were analyzed using Cronbach's coefficient alpha. With the exception of the Definition of Quality index, each coefficient alpha met or surpassed an $r$ value of 0.70. The Definition of Quality index had a 0.52 coefficient alpha and warranted inclusion in the final research instrument.

[5] However, an initial attempt to discern the impact of specialized accreditation revealed, surprisingly, that a faculty member's disciplinary affiliation had no significant impact on support for institutional effectiveness initiatives or any one of the four control variables. About half—51%—of the faculty respondents indicated that their unit or program was accredited by a specialized or program accrediting agency. *T*-tests were performed to evaluate the degree to which the two groups of faculty differed in their responses to the five indices. The table below presents the results of this comparison.

| Index | *t* | *df* | Significance (2-tailed)* |
|---|---|---|---|
| Perception of Importance | 1.30 | 281 | 0.193 |
| Primary Motivation | –.096 | 278 | 0.924 |
| Depth of Implementation | 1.84 | 278 | 0.067 |
| Definition of Quality | 1.30 | 278 | 0.195 |
| Level of Involvement | 0.544 | 286 | 0.589 |

*No significant difference found at the $p < 0.05$ level.

[6] An initial attempt by the researchers to pursue the impact of institutional type revealed somewhat mixed findings on this point for the faculty sample. A one-way analysis of variance performed on the dependent variable and each of the predictor variables

indicated that there was a significant difference among institutional types for two variables: perceived importance of institutional effectiveness activities and perceived primary motivation for institutional effectiveness activities. Institutional type was measured using the SACS rubric of classifying institutions according to the highest degree offered. SACS uses a range of six categories arrayed from those that are authorized to offer associate degrees only to those that offer doctoral degrees in four or more major disciplines. The table below presents the results of the analysis of variance for the faculty sample:

| Index | F | df | Significance |
|---|---|---|---|
| Perception of Importance | 2.41 | 5 | 0.037 |
| Primary Motivation | 2.47 | 5 | 0.033 |
| Depth of Implementation | 1.66 | 5 | 0.144* |
| Definition of Quality | 1.97 | 5 | 0.082* |
| Level of Involvement | 0.570 | 5 | 0.723* |

*No significant difference found at the $p < 0.05$ level.

However, it is also important to note that there was little evidence to suggest a consistent or linear relationship between institutional type and perceptions about the importance of institutional effectiveness activities and the primary motivation for these activities. The analysis revealed that while the faculty respondents from associate degree-granting institutions had higher means scores on the perceived importance of institutional effectiveness index, faculty respondents from doctoral-granting institutions had higher mean scores on the perceived primary motivation index. The analysis of variance applied to the administrator sample revealed no significant difference among institutional types on any of the five indices.

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# Book Reviews

*Management Fads in Higher Education: Where They Come From, What They Do, Why They Fail,* by Robert Birnbaum.
San Francisco: Jossey-Bass, 2000. 320+ pp. $33.00

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Birnbaum presents a theory about the success and failures of different management approaches that, with very careful examination, can be of great benefit to future scholars and institutional leaders. Those who believe that the loosely coupled, semicontrolled, anarchical nature of higher education institutions is the most appropriate form of organizational structure for this education enterprise will find great pleasure and solace in this book. Those who believe there are alternative organizational structures will be greatly disturbed.

A "management fad" is defined as a management innovation that is introduced with exaggerated zeal, receives brief popularity and modest success, but, because it is incompatible with the organizational culture, is never fully absorbed and is eventually rejected, as a body would finally reject a foreign matter. The author has identified seven management innovations that he believes fit this definition: Planning, Programming, Budgeting Systems (PPBS); Management By Objectives (MBO); Strategic Planning; Zero-Based Budgeting (ZBB); Benchmarking; Total Quality Management (TQM) and Business Process Reengineering.

While a summary table is not presented by Birnbaum, it is possible to identify the evolutionary characteristic of these innovations and the common reasons they met resistance from the culture of higher education. PPBS was concerned with creating a more rational approach at the beginning or input stage of a process by linking planning based on program priorities with budgeting. It was seen as a solution to the historically based, incremental budgeting systems (called Ur-Management by the author) that rarely questioned the appropriateness of a budget and had as a basic assumption that more money would solve any problem. MBO attempted to bring some control to an organization's output or what an organization should actually be doing by identifying and holding people accountable for specific objectives or outcomes. The underlying assumption of ZBB was that both PPBS and MBO blindly accepted an organization's existing priorities. ZBB required that budget priorities and assumptions be continually reexamined and justified in order to qualify for future funding. Strategic planning came into existence because existing planning techniques primarily focused internally on an organization's priorities and did not take into consideration how external events might also affect an organization. Benchmarking evolved as a more sophisticated form of MBO. While MBO was focused on existing organizational objectives, benchmarking assumed that an organization could be improve by studying and adopting the processes of another organization that was doing something better than anyone else. TQM attempted to bring together, as a total system, the concepts that related to the inputs of an organization (i.e., planning and budgeting); how an organization functioned or its processes (i.e., the major focus of benchmarking); and the outcomes of an organization (i.e., the basis of MBO). Fundamental to TQM was the assumption that if inputs, processes, and outcomes were seen as an interrelated and interdependent system, an organization would better understand the cause and effects of the various parts of organization's processes and be able to make changes that would help an organization better achieve its vision and mission (i.e., create focused continuous improvement). Business Process Reengineering, an extension of MBO and benchmarking, was the result of the frustration people have with the slowness of change. Reengineering assumed that once reorganization or the implementation of new systems was determined as necessary in order to eliminate internal resistance, it was critical to make rapid changes in personnel, organization, and processes.

This book proposes that these seven management innovations have been inappropriately adopted at one time or another by higher education institutions, and, finding them incompatible with the culture, eventually rejected. Birnbaum identifies a "life cycle" where these innovations are first developed in the nonacademic sector, and as they lose favor in the nonacademic sector they are belatedly adopted by the academic sector, only to be also rejected. The author determines the genesis, adoption, and rejection of these innovations through a review of the literature. For each new management innovation there is a flurry of literature proclaiming its benefits, some examination of its actual successes, and lastly, usually with great glee, the failure and rejection of the innovation by some organizations. The author concludes that through this cycle of literature it is possible to identify the birth and death of each innovation and, therefore, establish the appropriateness of labeling each management innovation a fad.

It is the use of the literature that is one of the greatest weaknesses of this book. The author seeks to cloak his personal biases by using selective quotes and citations that give the appearance of a literature review or meta-analysis. In reality this is just the presentation of a personal thesis through the use of "other people's words."

A second weakness is the failure of the author to include in his analysis the literature concerning the process of the adoption by an organization of a new technique or innovation. This literature describes the evolution of innovation quite differently than does Birnbaum. Since the pressure for change is almost always external to an organization, it is necessary that a new idea be introduced with great fanfare and overpromise in order to gain attention. Once a new innovation is adopted, it requires that new skills or knowledge be learned. Since change is often painful and produces at first negative results, a period of disenchanted learning occurs. It is during this time that many people and organizations reject the new process and return to the old and more comfortable ways of doing things. However, there are always those organizations that do persist and gradually adopt all or, more often, parts of the new innovation. This happens when an organization either adapts the new innovation to its culture or its culture to the new innovation. Either way there is usually a language change, so while the principles and processes of the new innovation are adopted, it is usually called by a name more harmonious with the organization's culture. Since the literature rarely tracks this semantic change, the last flurry of articles usually is only about the rejection of an innovation.

Thus, relying only on the literature that discusses a management innovation by a specific name to determine its birth, adoption and/or demise rather than to investigate the implementation of an innovation's basic value, principles, and procedures, often produces erroneous conclusions concerning the acceptance of that innovation. For Birnbaum this is especially true for those innovations that, at first, were encompassed under the rubric TQM. Birnbaum has been declaring TQM dead and a fad when, in reality, the values and processes of TQM have remained and matured under new labels, going from TQM to Continuous Improvement to Organizational Effectiveness. Evidence of the vitality of what has been called the quality movement can be seen in the activities of such organizations as the National Consortium for Continuous Improvement (NCCI), Continuous Quality Improvement Network (CQIN), North Central Association's Academic Quality Improvement Project (AQIP), the Malcomb Baldrige National Quality Award program, and more than 40 state "Baldrige-like" quality award programs.

The third weakness is the overpowering presence of the author's biases toward what he considers the fundamental nature of the culture, values, and organization of higher education institutions and the inappropriateness of management innovations that he sees as coming from the business sector. Birnbaum believes that higher education has the followings positive and, it appears, constant traits: higher education is a loosely coupled system, made up of semi-independent academic units that cannot and should not be held to measurable standards of accountability. The author proposes,

> Obsessive measurement can also reduce the social legitimacy of, and therefore the social support for, higher education. One of the characteristics of institutionalized organizations is that confidence and good faith (of those inside as well as outside the organization) are supported by adherence to ceremony and ritual rather than by evaluation and inspection. Society has confidence in the good faith of colleges and universities to the extent that these institutions are believed to do what they are supposed to, even when these activities are inconsistent with perceptions of technical effectiveness. (p. 198)

The author holds that

> institutions of higher education (except in the proprietary sector) have no owners and cannot distribute profits, so there is less pressure to operate efficiently. They function in a "trust market," in which people do not know exactly what they are buying and may not discover its value for years. (p. 216)

While beliefs like these may be shared by some members of the academy, a significant number of faculty, administrators, and others who believe in the importance of higher education do not.

Once getting by these weaknesses, the reader will find that there are several significant contributions made by this book. First, by bringing together these seven management innovations, Birnbaum has helped focus on their advantages, disadvantages, and the common features of both. Two of the most significant issues that have been identified are that when innovations are incongruent with the values of an organizational culture and when there is a lack of training to implement these innovations so that they are congruent with these values, the implementation of innovation will always fail.

Second, in the concluding pages of this book the author acknowledges that management innovations (or fads) are inevitable and that higher education institutions can help minimize their negative impact and maximize their value by taking the followings steps: be cautious—consider them with skeptical interest; be informed—learn as much as you can about essential values, principles and processes of the innovation; use innovations purposefully—avoid the bandwagon effect; anticipate resistance—introduce an innovation through a collaborative process; start small—see what works and does not work before organization-wide implementation; do not overpromise—set reasonable expectations; be sensitive to the organization's culture—culturally incongruent innovations are always rejected; adopt experimentally—do not become committed to an innovation until it has proven to be effective; do not relax commitment or support—major innovations take five or more years to become part of an organization's culture; and build in assessment—find out what is working and what is not with both qualitative and quantitative measurements. The irony of this very sound advice is that these steps are part of the principles and practices that guide continuous improvement within TQM.

This book deserves one final observation. While probably unintended, this book is also a severe critic of the study of higher education, its scholars, and the graduate programs. Starting from the beginning, the author observes that because of a lack of higher education organization and management theory, institutions have had to adapt management innovations from nonacademic sectors. Throughout the book Birnbaum comments on the lack of research literature concerning each innovation. Since the Association for the Study of Higher Education is more than 25 years old and higher education as a formal graduate and research area has been around for more than 40 years, this book demonstrates at least one major area of study that has been consistently neglected by higher education scholars. This raises the question, why? Is it because these scholars are afraid of offending the beliefs of other scholars like the author's or is it because the graduate research programs do not have the academic scholars with the interests and skills to address the very significant issue of higher education as a managed enterprise? Whatever the reason, this book is also a call for scholars to look more seriously at the values, organizational culture, processes, and outcomes and develop management theories and innovations that will help higher education institutions increase their effectiveness and be able, as a social institution, to demonstrate this effectiveness to society at large.

## *Crisis on Campus: Confronting Academic Misconduct*, by Wilfried Decoo. Cambridge, MA: MIT Press, 2002. 280 pp. $32.95

ALAN E. BAYER, Virginia Polytechnic Institute and State University

During our careers, those of us in academe will more than likely become involved in an alleged case of professional misconduct or at least be challenged to ponder an incident which exhibits impropriety on its face. The timing of such a ponderous experience and the ethical crisis it engenders cannot be well predicted. This book will brace us for this likely but unexpected challenge to our own ethical standards—and our ethical courage. This is one book that all academics should read *now* and keep handy on the office shelf for when a critical event erupts.

Recent decades have seen a number of highly publicized individual cases of gross scientific misconduct, accompanied by a burgeoning literature on research misconduct. However, much of this information is shaped by the two editions of the National Academy of Sciences' booklet on misconduct (Committee on the Conduct of Science, 1989; Committee on Science, Engineering, and Public Policy, 1995), which fosters limited discourse regarding only acts of deception principally through fabrication, falsification, and plagiarism ("FFP"). We have recently called for a broad expansion in the focus on professorial misconduct (Bayer, 2000; Braxton & Bayer, 1999), and Wilfried Decoo has done this in superb fashion (and hence the book's title embracing "Academic Misconduct" rather than merely "Research Misconduct" restricted to FFP). This broad definition used by Decoo encompasses such disparate acts as including intentionally deceitful information when applying for a grant, misuse of funds, forging institutional documents, awarding unearned high grades to athletes or other students, and failure to give proper authorship credit to collaborators. An all-too-common ethical breach which he addresses is what he refers to as "academic make-believe." One version of this is the padded C.V., with minor works misidentified as "peer reviewed"; identical works listed more than once with only different titles (described by Decoo as "autoplagiarism"); publications listed as "in press" or "forthcoming" which are in fact yet to be written; a brief incidental conversation characterized as participation in a conference; a brief informal campus visit as a "postdoctoral fellowship"; a simple recognition as a prestigious prize; claimed development of courseware which is actually "fakeware," "masqueradeware," or "emptyware" in Decoo's terms; or awarded degrees falsified and honorific titles invented.

The core of the book lays out the daunting task for the whistle-blower of procedures for detection of wrong-doing (Chap. 2), analysis and documentation of evidence of wrong-doing (Chap. 3), and evaluation and reporting of wrong-doing (Chap. 4). These chapters are grounded in one illustrative case study of the author's earlier allegation of plagiarism against a doctoral dissertation author. The accused in this case was exonerated, and it appears that much of the illustrative detailed documentation, including supporting statements to his allegation by six "misused authors" in the dissertation, was compiled only after the case was reviewed and closed. These illustrations appear to be *ex post facto* evidence that Decoo uses to tenaciously substantiate his failed claim and to vindicate himself.

The transfixing on this single case detracts from the book's utility and objectivity, but it serves to illustrate the great and time-consuming effort that a whistle-blower should expect. While not the intent of this book, this exhaustive task, together with the acknowledged high risks of sanctions against the accuser(s), may be sufficient to discourage one to act on their conscience of professional standards, rendered unable to muster their ethical courage. On the other hand, exposure to this book prior to an incident of misconduct may well deter a would-be transgressor or provide a whistle-blower with the capabilities to enact their professional duty.

The book concisely lists recommendations to the whistle-blower, the accused, and the academic institution involved. It addresses tactics of prevention, including both a series of constructive measures as well as establishing penalties and invoking fear as deterrents to misfeasance and malfeasance. Finally, it also provides an overview of plagiarism detection software, including an Appendix, which contains a detailed description of new detection software by contributor Jozef Colpaert.

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*In Pursuit of Prestige: Strategy and Competition in*
*U.S. Higher Education,* by Dominic J. Brewer,
Susan M. Gates, and Charles A. Goldman. Piscataway, NJ:
Transaction Publishers, 2002. 176 pp. $29.95.

ROBERT ZEMSKY, University of Pennsylvania

*In Pursuit of Prestige* is an important exercise in conceptualization. Like Charles Clotfelter, William Massy, and others, the authors seek to understand higher education principally as an industry. At the core of their analysis is a simple yet powerful taxonomy that classifies institutions as *prestigious*, *prestige seeking*, or *reputation building*. Institutions that have acquired prestige—the industry's medallion colleges and universities—are inherently conservative in their marshalling of resources, more concerned with preserving than extending the advantages that selective admissions, robust endowments, and substantial sponsored research confer. Prestigious institutions focus on the long term, in no small part because they are financially secure for the present. Institutions that have acquired substantial prestige are more likely to be faculty focused—more likely to use the financial resources that accompany prestige to attract and retain key faculty.

At the other end of the spectrum are those institutions that seek reputation rather than prestige. These are the institutions that are the most tuition dependent and hence most likely to be focused on the needs of their students as customers. They are concerned with the here and now in the sense that they pursue short-term strategies that allow them to adjust their offering as the markets for both undergraduate and graduate education shift. They see their roles not in terms of setting standards but in becoming models of successful practice.

Caught in the middle are those institutions that are prestige seeking. Often short of discretionary funds, frequently forced to compete in markets with high entry costs, prestige-seeking colleges and universities are the industry's biggest gamblers. They have embraced merit scholarships as a way of boosting their prestige by enrolling heavily recruited students. They have upgraded their athletic programs in pursuit of the kind of halo effect a winning program or, even better, a national championship promises. They have focused their research investments in a few, well-funded appointments that promise big pay-offs in the scramble for research funds.

With its focus on strategy as opposed to financial structure or institutional governance, *In Pursuit of Prestige* joins that handful of monographs and studies that are remaking the study of higher education finance. Charles Clotfelter's *Buying the Best: Cost Escalation in Elite Higher Education* made clear that attracting and retaining a competitive faculty was the strategic imperative that determined the prices medallion institutions charged their students. Goldman's own collaboration with William Massy—*The Production and Utilization of Science and Engineering Doctorates in the United States*—subsequently demonstrated that the number of doctoral candidates as well as postdoctorate positions in the sciences was largely determined by a similar strategic imperative—namely, the drive on the part of research faculty at research universities to increase their rate of publication and hence enhance their scholarly prestige. My work with Susan Shaman and Dan Shapiro—*Higher Education as Competitive Enterprise: When Markets Matter*—shifted the focus to the workings of the market and the growing tension between public purposes and market forces. Many of these ideas are now finding their apotheosis in the research agenda that Patricia Gumport and the National Center for Postsecondary Improvement is developing at the behest of the U.S. Department of Education.

Part of the fun of engaging in these discussions is the opportunity each of these monographs and studies provides to "push-back against the grain" of their argument to see how the analysis itself may be extended. In the case of *In Pursuit of Prestige* three such "push-backs" come readily to mind. The first is the authors' assertion that prestige is hard to capitalize—that is, it is difficult to convert a gain in prestige into more dollars to spend immediately. While in general an institution does have to spend money to get and preserve prestige, the recent example of Princeton University's decision to increase its undergraduate student body by 10 percent is a case in which an institution with super-prestige was able to substantially increase revenue precisely because it could increase enrollment without reducing its prestige.

A second "push-back" involves pricing strategies. Isn't it possible that institutions at the top of the pecking order—that is, institutions with both super-prestige and extraordinary endowments—have an incentive to limit their own prices in order to constrain the amount of funds available to other less endowed as well as less prestigious medallion institutions? The University of Pennsylvania, for example, cannot really charge more than Princeton or Harvard, and yet, it is therefore at a competitive disadvantage given the size of the Harvard and Princeton endowments. My suspicion is that this is but one of a class of insights about the different role pricing plays in determining the kinds of institutional strategies that are the focus of *In Pursuit of Prestige.*

A third "push-back" involves accreditation and the role it plays in the competitive strategies of reputation-building and prestige-seeking institutions. The authors correctly point out that the Carnegie Research I classification—itself a kind of quasi accreditation—becomes a remarkably tangible goal for prestige-seeking institutions attempting to build a research base. In some ways a more interesting example, because it involves reputation-building as well prestige and prestige-seeking institutions, is the accreditation of business schools and programs by the Association to Advance Collegiate Business Schools. When a new or expanding school of business seeks AACBS accreditation, does it do so to burnish its prestige or to improve its reputation in a highly competitive market? And isn't it possible that the road to prestige begins with the extra income a school can realize if it wins an AACBS medallion?

Because such "push-backs" are precisely the kinds of discussions *In Pursuit of Prestige* engenders, it is a volume that is must reading for both institutional leaders and first-year graduate students just beginning their exploration of the higher education market place.

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## *Repay As You Earn: The Flawed Government Program to Help Students Have Public Service Careers,*

by Philip G. Schrag. Westport, CT: Bergin & Garvey,
Greenwood Publishing Group, 2001. 176 pp. $55.00.

EDWARD P. ST. JOHN, Indiana University

There has long been speculation that excessive debt could influence major and career choices (e.g., Karmer & VanDusen, 1986; Newman, 1985). While research does not yet confirm a relationship between debt and major choice (St. John, 1994), there is reason to be concerned about whether excessive debt influences the career choices made after college. Students who end up in career fields that are unrelated to the college majors are more likely to default (Flint, 1997). With the growing level of student debt, the role of debt burden should be of concern to faculty across the disciplines because repayment can be problematic, even in elite professions. Phillip Schrag's *Repay As You Earn* provides a sound review of recent federal efforts to ease repayment burden for students choosing public service careers. It also provides a case study documenting the reasons why a low percentage of law school graduates have not chosen this alternative repayment scheme.

Schrag documents the reasons why debt burden should be of concern, why income-contingent repayment came about as an option, and how it works. He starts by documenting the problem of college prices and growing levels of student debt (Chap. 1), a topic that has been widely addressed in the research literature (e.g., Fossey & Bateman, 1998). Schrag examines how income-contingent repayment came about, documenting President Clinton's campaign pledges and the legislative process (Chap. 2), providing an insightful description of the evolution of the policy arguments. He provides hypothetical individual cases to illustrate the way income-contingent repayment would work for students with different earnings streams (Chap. 5). He illustrates that the repayment scheme can lead to substantial loan forgiveness for individuals who choose public service careers. He even shows how individuals who enter higher earnings careers, say in private law firms, end up making the full repayment, but have some advantage in increasing monthly payments as they earn more across their careers. These chapters provide a comprehensive overview of the development of income-contingent repayment and should be informative for financial aid administrators.

Schrag also explores why the income-contingent option is not more widely used by law graduates. He analyses surveys of law students at Georgetown University and Catholic University (Chap. 3) and of financial aid administrators in private law schools (Chap. 4). The analysis of student surveys reveals that many law students expect to be involved in public service work, possibly as part of their employment in private law firms. However, a small percentage of students—and even students who appear headed toward careers in public service—actually take the income-contingent repayment option. His analysis indicates that students lack an understanding of the program. Students find that it is complicated to calculate how they would benefit from taking this option. This analysis provides interesting insights into the career decision processes used by law students as well. The survey of aid administrators revealed that most of the respondents did not provide adequate information to students on the details of the program. About half provided some information about the program to law students in their schools, but very few provided help with the arithmetic needed to figure out whether there was any advantage in taking this option. In combination, these chapters provide an informative case study of the reasons why income-contingent repayment has not been widely used by law graduates.

Chapter 6 provides an analysis of why the program is so unpopular. Schrag discerns two reasons. First, he argues that law students do not respond well to the financial incentives in the program because few really expect to have low earning careers. He also speculates that high levels of debt could be encouraging more students to seek high earnings rather than public service. Second, he also points to structural problems with the program that could inhibit widespread use of this option.

Schrag makes three recommendations in Chapter 7. First, he recommends that the U.S. Department of Education make better information on the program available to students and financial aid advisors. Second, he recommends that Congress should make the amount of debt forgiven tax exempt. He argues that the failure to include this feature—along with the fact that borrowers are taxed on the amount of debt that is forgiven—create distrust among borrowers and aid administrators. Third, Schrag recommends that the marriage penalty be repealed.

The book as a whole provides a credible analysis of a recent policy change, along with recommendations that merit consideration. The argument that better information should be provided should be heeded by the U.S. Department of Education. Not only does the fact that this repayment option is underutilized by those who could benefit from using it is a prime facie case for improving the quality of information, but this book provides compelling research evidence to support this case. Providing the tax exception for the loan forgiven and removal of the "marriage penalty" would make the program more just, as well as expand the ways the program can benefit society.

*Repay as You Earn* should be good reading for students interested in higher education policy. It should also be helpful to financial aid administrators who would like to learn more about the income contingent repayment option.

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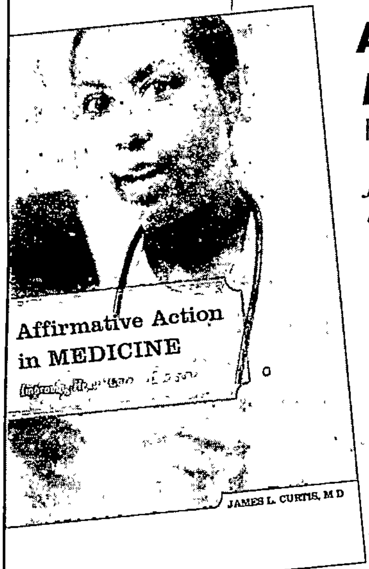

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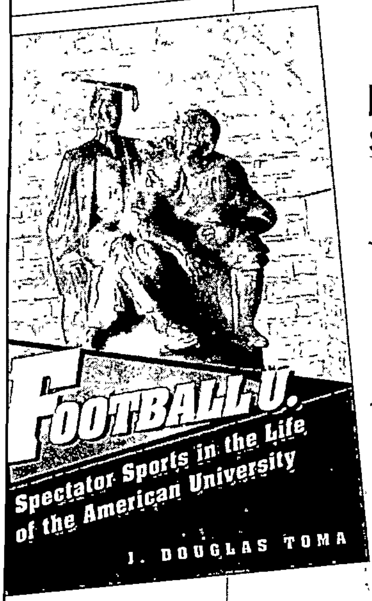

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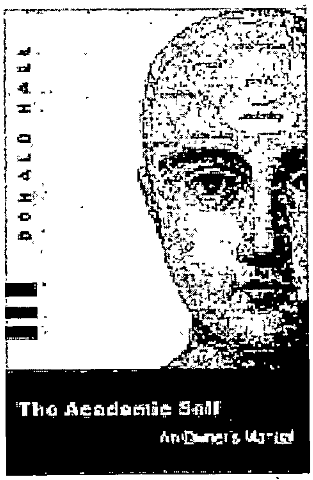

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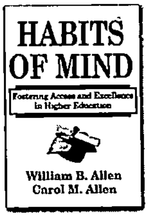

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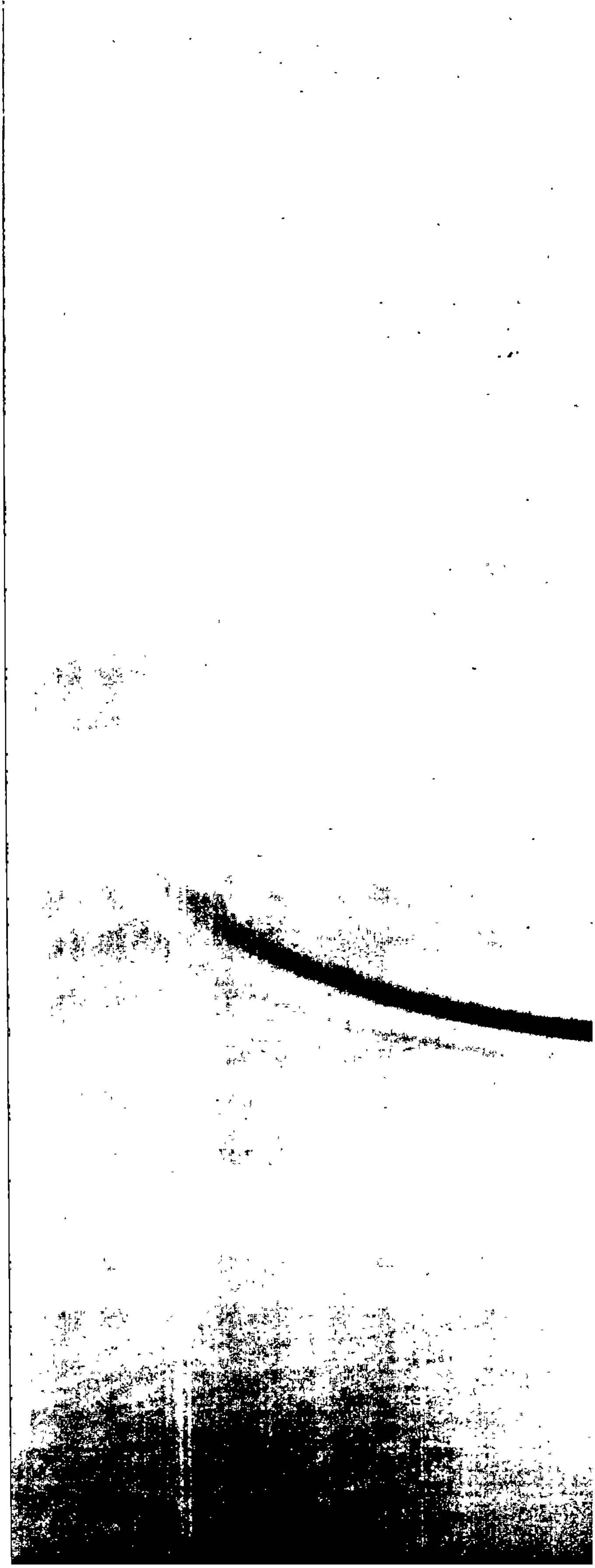

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Michael K. McLendon

# Setting the Governmental Agenda for State Decentralization of Higher Education

## *Background and Problem*

Stephen K. Bailey once characterized the American campus-state relationship as embodying a "persistent human paradox—the simultaneous need for structure and for anti-structure, for dependence and for autonomy, for involvement and for privacy" (1975, p. 1). Because neither complete accountability of the campus *to* the state, nor absolute autonomy of the campus *from* the state is feasible, the crucial question confronting policymakers is where the line between campus and state should be drawn. The inevitable tension between these dual demands for freedom and control has vexed state policymakers for higher education throughout U.S. history, especially in the last half of the twentieth century.

Prior to the Second World War, most states exercised relatively little formal regulatory control of higher education. However, during the dynamic postwar growth era of the 1950s and 1960s, the balance of authority dramatically shifted from campuses to state governments. The rapid expansion of state control was the result of a convergence of social and political forces both internal and external to higher education, including a historic surge in college enrollments, increasing sprawl in state

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systems of higher education, trenchant interinstitutional rivalries, and the growing regulatory capability of state governments. Although the centralization movement met with intense criticism from numerous national study commissions (Carnegie Commission, 1973; Carnegie Foundation, 1976, 1982), by the mid-1970s the pendulum had decidedly swung toward greater governmental control. The authors of one such national commission lamented: "Guerilla warfare now goes on all across the nation over what belongs to the institution and what belongs to the state. Independence erodes yearly in the face of the greater forces in the hands of the state, and frustration on both sides grows daily" (Carnegie Foundation, 1976, p. 18).

Glenny and Bowen (1977) astutely observed that state intervention into higher education has taken place in "almost infinite ways." Yet, the institutionalized control of public campuses was achieved mainly through the creation and subsequent strengthening of statewide coordinating boards[1] and consolidated governing boards. Through the mechanism of coordination, states superimposed upon campus governance structures a new entity whose responsibility was to make central academic and fiscal recommendations or decisions for an entire state. In consolidated governing boards, states achieved a highly centralized form of campus governance, whereby a single board was empowered to make all day-to-day management decisions for institutions within a particular system or state (McGuinness, 1998). The proliferation of these agents of centralized control was rapid; in 1950, state coordinating and governing boards existed in just 17 of 48 states, but by 1974 only three of 50 states were without them (Berdahl, 1971, 1975).

In contrast with the universal trend toward centralized control of higher education in earlier decades, the 1980s and 1990s witnessed a diverse array of higher education "reorganization" and "restructuring" initiatives in the states (McGuinness, 1998; MacTaggart, 1996). One important development that arose during this turbulent period in state coordination and governance of higher education was a countertrend toward *decentralization*[2] of decision authority from the state to more local levels of campus control (MacTaggart, 1998; Marcus, 1997; McLendon, forthcoming). Marcus (1997) documented as many governance decentralization proposals (eleven) in the states between 1989 and 1994 as there were proposals to centralize higher education governance at the state level. In fact, from 1981–2000, at least 16 states enacted legislation decentralizing authority from the state to the campus level (McLendon, forthcoming).

Although the precise dimensions of the decentralization countertrend prove challenging to limn, four primary forms may be delineated.[3] The first form, especially popular in the early 1980s, involves the enactment of "flexibility legislation." Such legislation transfers authority over select management functions from the state to the campus level while largely leaving intact existing coordinating and governing arrangements. For example, Colorado (legislation enacted in 1981), Kentucky (1982), and Maryland (1984) decentralized, to varying degree, authority over campus enrollments, tuition, and personnel without altering their coordinating or governing arrangements. A second form of decentralization involves disaggregating university governance systems. One example is Illinois' (1995) decision to abolish two multicampus systems and to create local boards of trust for those campuses formerly governed by the two systems. A third form of decentralization has moved beyond the earlier "flexibility" approach through creation of hybrid "public-private" institutions. This approach differs from the flexibility mode in that the hybrid entities are recognized as having some new form of corporate status under law. Examples include Maryland's (1992) exemption of St. Mary's College (a public campus) from the University of Maryland system and, therefore, from stringent state financial controls, and Hawaii's (1998) restructuring of the University of Hawaii, a statewide multicampus system, into a "quasi-public corporation" with authority over numerous management functions formerly exercised by state agencies. Finally, decentralization has involved the substantial weakening or dismantling of statewide coordinating systems, such as in the cases of New Jersey (1994) and Arkansas (1998), where regulatory coordinating boards were replaced with far less powerful entities.

To be sure, decentralization has not been the case everywhere. Many higher education restructuring efforts of the past two decades have strengthened, not weakened, state control over campuses (McGuinness, 1998). Moreover, the recent wave of "performance funding" mandates, which link state dollars to demonstrated institutional outcomes, is one more manifestation of continued governmental efforts to ensure the "accountability" of public campuses (Zumeta, 2001), efforts that may clearly be seen to constrain, if not diminish, the operating autonomy of public campuses and systems.

Nevertheless, the move toward greater autonomy for higher education in many states represents a significant development within the broader historical sweep of campus-state relations in the United States, especially when it is viewed against the backdrop of universal expansion of state governmental authority in the mid-twentieth century. Among its implications, the decentralization phenomenon raises important questions about the nature of public policymaking to reform the campus-state regulatory relationship, questions to which scholars have paid surprisingly little attention. For example, although an appreciable literature has accumulated in description of various decentralization initiatives (Berdahl, 1998; Berdahl & MacTaggart, 2000 Greer, 1998; Hyatt & Santiago, 1984; Marcus, 1997; Marcus, Pratt, & Stevens, 1997; MacTaggart, 1998; McGuinness, 1995; Mingle, 1983; Novak, 1996), very little is known about how or why decentralization first becomes an issue to which state governments pay serious attention. Alternately stated, no systematic research has examined the earliest stage of policymaking, a stage known as *agenda setting*, in states that have restructured their higher education systems in the direction of greater campus autonomy.

*Agenda setting* is a term used in the public policymaking literature to refer to the processes by which an issue moves from relative obscurity to become one of a small number of priority issues that has gained the serious attention of policymakers and is being positioned for decisive action by government. Agenda research, therefore, focuses on the dynamics by which issues become *issues* in the first place. The question of how issues first gain prominence among policymakers has long intrigued scholars. Indeed, some prominent political scientists regard agenda setting as the most critical stage of policymaking, for an issue must first command attention before the choice process can begin (Baumgartner & Jones, 1993; Cobb & Elder, 1983; Schattschneider, 1960). Over the past 20 years, research on agenda setting has accumulated in a variety of policy domains. Alas, systematic inquiry into the formation of the state governmental agenda for higher education, particularly into the dynamics by which campus-state regulatory reform becomes a prominent issue on the governmental agenda, is scant.

### *Purpose of the Study*

Despite recent governmental activity in redistributing authority between campus and state, little conceptual or empirical work exists on the phenomenon of decentralization or on the nature of state policymaking to restructure higher education authority patterns, generally. The present study sought to address this void in the literature. Specifically, the investigation employed rival theories of public policy formation and comparative-case study methods to examine how higher education decentralization emerges as a prominent issue before state governments.

The purpose of the study was twofold. First, it sought to generate, through comparative analysis of multiple decentralization episodes in the states, new insights into the processes and politics of higher education governance reform. Although the study focuses on just one end of the reform continuum—that of decentralization—contemporary social and political trends suggest that decentralization likely will remain an attractive policy option well into the foreseeable future (DiIulio, 1994; Osborne & Gaebler, 1992). Moreover, examination of decentralization policymaking may produce valuable insights into an array of campus-state reform phenomena.

A complementary purpose of the study was that of theory development. While scholars of K–12 education have developed various conceptualizations of public policymaking to help explain policy activity within their domain (Clune, 1987; Fowler, 1994; Mawhinney, 1993; Mazzoni, 1991), higher education scholars have made little effort to systematically identify, simplify, and arrange the significant interactions and relationships attending higher education policymaking at the state level. Such effort, however, is crucial in developing a social scientific literature on higher education policymaking in the states. This study addresses the limitation in several ways. By examining the extent to which existing theories help explain higher education agenda setting, the study directly links the larger literature on American policymaking with the study of state higher education policy formation. Second, through use of a comparative-analytic research design, the study explores the possibility of an underlying pattern in higher education policy processes that transcends state boundaries. Finally, through efforts to specify a grounded conceptual model of agenda setting, the study seeks to provide an initial framework that may guide future inquiry.

The research questions that guided this study reflect a twin concern for understanding the dynamics that attend policy processes and the interactions of principal policy actors involved: How does the issue of higher education decentralization achieve a place of prominence on the governmental agenda? What is the relative influence of different policy actors in the agenda-setting process? To what extent do various theories of public policy formation adequately explain how higher education decentralization achieves the decision agenda of state government?

### *Conceptual Framework*

Research on agenda setting has accelerated in recent years, providing scholars with an array of theoretical perspectives that may be used to investigate policy initiation in the higher education domain (McLendon, 2000). Following in the tradition popularized by Graham Allison (1971), this study employed three rival theories to guide investigation of higher education agenda setting in the states. Applying competing theories to the same phenomenon has numerous advantages. It can provide a check against the bias of any one single interpretation of data (and reality). Additionally, comparing rival explanations of a single phenomenon may lead to the development of "strong inference" (King, Keohane, & Verba, 1994) or the accumulation of evidence in favor of one explanation sufficient to rule out alternative explanations. Such systematic consideration of alternative explanations is an important component in assessing the explanatory power of different theoretical perspectives and, thus, in theory development.

The following discussion provides synopses of the three theoretical "models" that guided this study of agenda setting: the Rational-Comprehensive, the Incremental, and the Revised Garbage Can models. The three models advance different propositions about the nature of policy formation in American political systems, propositions that were used in developing an analytic framework for the study. These particular frameworks were selected chiefly for two reasons.

First, when seeking to assess how well different lenses of policy formation explain a focal phenomenon, it is important that the lenses in fact provide competing explanations of the same phenomenon. As Zahariadis (1998, p. 434) put it, such explanatory lenses should offer "different answers to the same question," rather than "different answers to different questions." Indeed, the three frameworks used in this study draw from a common approach to the study of governmental behavior (an organizational-decision approach) and address the same "question" (how and why governments process decisions the way they do), but each framework posits different assumptions and assertions about the nature of such governmental functioning.

A second rationale for the selection of these particular theoretical frameworks involves the need to more rigorously assess Kingdon's (1984, 1994) assertion that his Revised Garbage Can perspective on policy agenda formation possesses greater explanatory power than either the Rational-Comprehensive or Incremental perspectives. Despite the Revised Garbage Can framework's popularity, one indication of which being its frequent citation in the social science literature (King, 1994), Kingdon's formulation has attracted relatively little testing and elaboration (Sabatier, 1999). This study seeks to systematically examine whether in fact the Revised Garbage Can framework provides a more adequate and accurate explanation of policy agenda setting than do the other alternatives.

### *Rational-Comprehensive Model*

The Rational-Comprehensive model is the penultimate problem-solving model of public organizations. The model, sometimes known as *normative* decision making, emphasizes the systematic collection and analysis of information as part of a linear set of processes designed to "maximize" the solution of public problems. At the heart of the model reside a series of rigorous analytical procedures that decision makers employ to calculate the costs and benefits of considering certain problems and pursuing alternative solutions, allowing them ultimately to select the one alternative that produces the greatest benefit for the problem they have chosen to consider (MacRae & Wilde, 1979; Simon, 1957).

The Rational-Comprehensive perspective on governmental agenda setting holds that issues achieve prominence through a series of sequential problem-identification and solution-generation processes. Policymakers identify problems by articulating goals and setting levels of achievement for those goals that will satisfy them, and then by conducting analyses of the costs and benefits of alternative problems in order to determine which problem among many possible ones they should consider. After the selection of a problem, policymakers shift their attention toward the generation of solutions, systematically collecting and analyzing data about policy options and ultimately advancing the optimal alternative solution.

Although few observers likely would characterize public policymaking as a logical, problem-solving process, principal features of the rational-comprehensive perspective are reflected in twentieth-century reforms of state government and in recurring debate about the power of reason to help solve social problems. The legislative modernization movement of the 1950s–70s produced numerous changes designed to make legislative decision making more rational, efficient, and data centered, including creation of central bureaus of legislative research and reform of committee procedure (Rosenthal, 1981). Indeed, the emergence of the higher education coordinating board, which was conceived as an agent of independent analysis in service to enlightened policymaking, may be traced to this era of state governmental reform (Hearn & Griswold, 1994). A palpable rational-comprehensive flavor also attends the enduring debate over the power of social science research to improve public policy outcomes. Such debate recently has emerged in higher education circles, with practitioners and scholars engaged in a spirited dispute about the public policy relevance of contemporary higher education research (Birnbaum, 2000; Layzell, 1990; Terenzini, 1997).

### *Incremental Model*

As a response to criticism that the rational-comprehensive perspective inaccurately portrays the kind of decision making that actually occurs in government, Lindblom (1959, 1968) advanced the notion of "disjointed incrementalism." Drawing inspiration from Simon's (1957) work on "bounded rationality", and grounding his conclusions in an analysis of decision making at multiple levels of American government, Lindblom asserted that because policymakers are under pressures of time, incomplete information, and competing demands of organized interests, they grow content to "satisfice," aiming at acceptable rather than optimal outcomes. Because policymakers accommodate institutional and group demands by considering only those policy options that deviate *incrementally* from the status quo, governments tend to move in small steps.

*Incrementalism* characterizes governmental agenda setting as a long series of political, and only semi-analytical, steps with no clear beginning or ending (Cobb & Elder, 1983; Lane, 1983). An issue's emergence on the agenda is said to result from policymakers' gradual interest in a perennial problem, only the immediate dimensions of which are considered, because policy makers never seek to "solve" problems, only to ameliorate them by making modest changes over time. Policymakers should never be surprised by an issue's emergence because they witness its gradual development. The historical record should reveal a pattern of marginal steps that seem predictable to policymakers. Since small steps are taken annually in response to many existing problems, the agenda remains "clogged", diminishing the pace and trajectory of new issues.

Incrementalism, with its attendant emphasis on group conflict, enjoys paradigmatic status in the higher education policy literature. Whether the focus of investigation is at the state or the national level, most studies assert that the existence of fragmented decision structures and overlapping sources of power produce a form of higher education policymaking characterized by gradualism and predictability. For example, Olivas's (1984) study of the dynamics leading to the creation of the Ohio Board of Regents, one of the few published studies to have explicitly examined governmental agenda setting for higher education, borrows heavily from the tradition of policy incrementalism.

### *Revised Garbage Can Model*

Kingdon's (1994) importation of the "garbage can model of organizational choice" from organization theory provides political science with a provocative and popular explanation of agenda formation in American government (Sabatier, 1999). Borrowing from Cohen, March, and Olsen's (1972) work on decision making in universities, Kingdon conceptualized the federal government as an "organized anarchy" characterized by problematic preferences, unclear means, and fluid participation. Kingdon then adapted to his study of national agenda setting the essential logic of such an organization, massaging the ideas of Cohen-March-Olsen to fit the contextual conditions of the federal government. Kingdon advanced his *Revised Garbage Can* model, which he based on panel interviews with over 240 policymakers, to explain how issues in the areas of health and transportation rise to the top of the national decision agenda.

The Revised Garbage Can model proffers a dynamic set of processes whereby problems, ideas, and politics combine with choice opportunities to elevate issues to prominence. It holds that three separate "streams"—a stream each of problems, policies (ideas or solutions), and politics—flow through the national government largely independent of one another. An issue attracts the attention of policymakers only when the separate streams conjoin with a choice opportunity. Separate streams may become coupled when a "window of opportunity" opens, briefly allowing "policy entrepreneurs" to push attention to their pet problems or to push pet solutions. Thus, what gets onto the agenda is a function of the contents floating in the metaphorical garbage can at the moment in time a policy entrepreneur successfully couples the separate streams of activity.

The Revised Garbage Can model is quite unlike either of the other perspectives previously discussed. It differs from the Rational-Comprehensive view in that policymaking does not proceed through a prescribed, logical sequence. Instead, streams of problems, alternative solutions, and politics develop independently of one another and none necessarily antedates the others. Policymakers do not set about to first identify problems and then seek solutions to the problems; solutions may actually precede the problems to which they eventually become attached. According to Kingdon, Incrementalism does not explain the process of agenda setting very well, either. The Revised Garbage Can perspective rejects the idea that agenda formation is marginal or gradual. Indeed, an issue may suddenly "hit" or "take off", rising very quickly to become the hot-button topic of the day.

While the Revised Garbage Can perspective has yet to be employed in the study of higher education policymaking, Kingdon's model remains the subject of considerable discussion in the political science literature (Durant & Diehl, 1989; Mucciaroni, 1992; Mumper, 1987; Sabatier, 1999; Zahariadis, 1999). Very little research, however, has examined the extent to which Kingdon's framework explains agenda formation at the state level of American government or in the education policy arena.

## *Research Methods*

### *Research Strategy*

Three features of this study, the purpose of which was to examine how well rival theories explain higher education agenda setting in the states, guided the selection of a research strategy. First, the study addresses complex issues about a poorly understood phenomenon. Second, the study's focus was that of attempting to understand a set of nebulous governmental processes, rather than to predict their occurrence. Third, the nature of the research questions made *context* (e.g., a state's economic or political context) a crucial consideration. For such reasons, the *case method* was chosen as the chief research strategy of the investigation (Miles & Huberman, 1994; Yin, 1994). A *comparative*-case strategy was used because the existence of multiple cases allows one to establish the range of a given explanation; in this study, cross-site comparisons permitted generalizations made about agenda setting to be stated more assertively. The comparative-case tradition is a prominent one in the study of policymaking. Nelson Polsby, a well regarded scholar of agenda setting, has argued: "So long as our understanding of policy initiation is primitive, . . . the strategy of laying out case studies and searching for ideas about the experiences they embody seems not only defensible but desirable" (1984, p. 6).

### *Sample and Data Collection*

The nature of the study's research questions necessitated that the sample include cases sufficiently diverse so as to permit an assessment of the explanatory power of the three agenda-setting models under different contextual conditions. Three criteria were used to identify such a sample. First, states selected for inclusion in the study had to have enacted their decentralization policy since 1995,[4] but in different years. Second, the states selected had to have pursued substantively different approaches to decentralization. Third, the states selected had to vary in demographic, political, and higher education-system composition. Consideration of the several criteria resulted in a sample of three cases: the case of higher education "reorganization" in Arkansas (culminating in legislation in 1997); the case of "university restructuring" in Hawaii (1998); and, the case of higher education "decentralization" in Illinois (1995). Each decentralization episode held potentially significant consequences for the balance of campus-state authority in the respective state.

An eclectic mix of data, including interviews, documents, and archival records, was collected in each state. A critical data source was semistructured interviews with 61 policy actors in the three states. Three-quarters of the interviews were conducted in person during site visits to the states in 1999; the remainder was conducted by telephone. Informants were selected through a generative process in which an initial group of target-informants in each state was asked to identify other individuals with special insight into their state's decentralization episode. Informants represented five categories of policy actors, indicated in Table 1. Interviews lasted, on average, 50 minutes in length. Interviews were tape-recorded and transcribed and extensive field notes were taken.

The study's semistructured interview protocol contained 12 questions corresponding to the various dimensions of the study's analytic framework (discussed below). The protocol focused on four main areas: (1) the political, economic, and social conditions in each state at the time the decentralization issue arose; (2) the nature of the problems that were thought to exist at the time of the episode; (3) the ways in which decentralization proposals were generated; and, (4) the dynamics attending the decentralization issue's advancement onto the governmental agenda. The protocol was pilot-tested with policymakers in a fourth state prior to its use in the field.

### *Data Analysis*

Data collected from each state were transcribed, coded, classified into patterns, and written in the form of a narrative case study. The chief analytic strategy employed in the study was a form of *pattern-matching* in which data patterns were matched with propositions operationally derived from the rival theories for the purpose of determining how well the theories explained each state's agenda episode (Miles & Huberman, 1994; Yin, 1994). The "within-site" pattern-matching process involved several steps. The three theories previously discussed advance competing propositions about how issues emerge on the governmental agenda. Three competing sets of propositions were identified for each of seven important dimensions[5] of agenda setting examined in

TABLE 1

Distribution of Study Informants by Category and State (n = 61)

| | States | | |
|---|---|---|---|
| Informant Category | Arkansas | Hawaii | Illinois |
| Campus/system officials | 11 | 6 | 7 |
| Legislators and staff | 6 | 5 | 4 |
| Governors and staff | 2 | 2 | 3 |
| State agency officials | 4 | * | 2 |
| Academics, press, and other Observers | 2 | 3 | 4 |
| Total number of informants Per state | 25 | 16 | 20 |

NOTE: This table charts the total number of individual informants interviewed; multiple interviews with the same informants are not counted toward the totals.

*Under Hawaii's state governance structure, senior campus administrators also "double" as agency officers. Such informants are found under the single heading of "Campus and System Officials".

the focal cases. These differentiated categories comprised an analytic framework expressed in the form of a table. Proceeding *deductively*, the author developed a system of codes representing the different categories of the framework and manually assigned the codes to the textual evidence of each case; multiple rounds of coding were performed. Upon completion of the coding, the data were arranged for the purpose of determining the extent to which data patterns in each case matched the patterns hypothesized by the different theories of agenda formation, as operationalized in the analytic framework. In other words, the process was one of determining how well the data "fit" the rival scenarios suggested by the different theories. A separate inductive analysis also was performed for the purpose of identifying emergent themes in the data. After coding and analysis of the individual cases, a *cross-case* analysis was conducted to identify points of commonality and divergence in agenda setting across states. Here, the focus was on assessing the extent to which data patterns in each case matched the patterns in other cases.

A summative point should be made regarding efforts taken by the author to "triangulate" data (Lincoln & Guba, 1985) and to ensure the accuracy of the cases developed. Painstaking care was taken to balance insights gained from interviews with information gathered from archival sources. Legislative reports, campus and state documents, blue-ribbon studies, and press accounts were scrutinized in order to corroborate interview data. Yet, while archival data helped establish the chronological structure for each case episode, such data were less useful in identifying the behavior and motivations of policy actors and the underlying patterns of policy activity. Here, the extensive interview data were of penultimate value. When informants' accounts diverged, follow-up interviews or interviews with additional informants were conducted (another form of triangulation), resulting typically in the accumulation of evidence favoring a particular interpretation; rarely did the accumulated data reflect persistently divergent accounts. In order to ensure clear connections between the data analyzed and the theoretical propositions explored, a matrix was created before fieldwork began that linked data sources to the various dimensions of the analytical framework (Miles & Huberman, 1994); for each analytical dimension, the researcher identified corresponding data sources (specific protocol questions and archival sources) that would serve as the evidentiary basis for conclusions drawn. Finally, each case write-up was reviewed by principal policy actors involved in the focal episode as a key strategy for establishing the credibility of case reports (Creswell, 1998).

### *Case Summaries*

The case summaries that follow provide narrative accounts of the decentralization agenda-setting episodes in Arkansas, Hawaii, and Illinois. These case summaries are distilled from more complex case studies (McLendon, 2000). Each case "begins" at a point in time prior to the emergence of the decentralization issue and then chronologically charts the issue's rise on the governmental agenda.[6] All quotations cited are those of informants interviewed for the study.

### *Higher Education "Reorganization" in Arkansas*

Throughout the 1990s, a complex interplay of issues, interests, and personalities produced various episodes of conflict between the Arkansas Board of Higher Education (BHE), a regulatory coordinating board with approval authority over campus programs and budgets, and many of the state's 30 public colleges and universities. By January 1996, relations between the Board and some of the institutions had markedly deteriorated. This was especially the case with two-year colleges, which perceived poor treatment at the hands of the Board and its administrative arm, the Department of Higher Education (DHE), over a range of issues, including a controversial performance-funding plan. Although no one in state government at that time was considering the idea of radically altering the campus-state relationship, one year later the issue of "reorganizing" Arkansas higher education, and the locus of decision authority within the higher education policy domain, stood atop the state governmental agenda following the emergence of a dramatic proposal to abolish the BHE and to downsize the DHE.

*Importing solutions: Introduction of the "New Jersey"* Plan. In January 1996, a small number of campus officials who had grown contemptuous of the Board and the Department began privately discussing what they called the "New Jersey Plan" as a possible solution to the agencies' alleged "intrusions" into the affairs of campuses. The term referred to landmark New Jersey legislation two years earlier that had decentralized higher education in that state by replacing a strong coordinating board with a much weaker entity and creating a "Presidents Council" to facilitate campus self-regulation. The president of one Arkansas university cautiously recounted that the New Jersey Plan first found its way into circulation in Arkansas after he and several campus representatives had discreetly contacted New Jersey officials to inquire into the decentralization initiative. The Arkansas delegation provided copies of the legislation to state Senator Nick Wilson, perhaps the single most powerful member of the General Assembly, who the officials believed might share their interest in diminishing Board authority, because the senator previously had quarreled with DHE staff over leadership of the community college sector. By all accounts, however, Wilson received the New Jersey Plan with complete disinterest. Of paramount concern to Wilson, according both to the senator's allies and adversaries, was his protracted fight with a rival faction of Senate Democrats. The presence of Governor Jim Guy Tucker—a strong chief executive and protégé of former Governor Bill Clinton who had provided key political support for the Board and the Department—provided additional disincentive to any attempt at undermining the agencies. Wilson acknowledged he had no use for the ideas presented him early in 1996, commenting:

> What people call the 'New Jersey' model—hell, that sat around a long time after I first got it. I don't even remember who first handed it to me—someone at an institution, I think. But, yeah, I'd seen something about [the New Jersey legislation], but I didn't pay much attention. It just wasn't relevant *at that time.*

The officials who secreted copies of the legislation to Wilson accepted his indifference, for none of them had considered the decentralization idea a feasible prospect. Indeed, the secrecy surrounding the dissemination of the New Jersey Plan concept reflected an awkward reality: while many campus leaders viewed recent decisions by the BHE and the DHE with disdain, most leaders did not favor a fundamental reordering of the campus-state relationship.

*Gubernatorial resignation and a resulting "power vacuum."* On Tuesday, May 28, 1996, the nation's media turned its attention to Little Rock, Arkansas, where a federal grand jury returned guilty verdicts against Governor Jim Guy Tucker on charges of conspiracy and mail fraud stemming from the ongoing "Whitewater" investigation into the real estate transactions of U.S. President Bill Clinton. The verdicts carried a maximum penalty of 10 years in prison. Tucker's sentencing date was set for August. Following the conviction, Governor Tucker announced he would resign effective July 15, 1996. On the day of Tucker's expected resignation, hundreds of spectators gathered in the chamber of the Arkansas House of Representatives to witness the swearing-in of Republican Mike Huckabee, a Baptist minister without any governmental experience prior to his election as lieutenant governor two years earlier. Instead of an inaugural celebration, a four-hour constitutional crisis arose when Governor Tucker "rescinded" his resignation minutes before the ceremony was to have begun. After several hours of backroom intrigue, Huckabee appeared on statewide television apprising Tucker of his near-complete loss of legislative support and warning him of an impending impeachment vote. Tucker immediately resigned, and Huckabee was sworn into office as only the third Republican governor of the century (Haddigan, 1996).

The circumstances and timing of Huckabee's unusual ascension to office placed him in an exceedingly weak position—just months before the start of legislative session, the inexperienced, and unelected, Republican was flanked by overwhelming Democratic majorities in the General Assembly. So great was the political instability that lawmakers perceived the existence of a "power vacuum" in state government. One implication of the fragile political landscape was the opportunity afforded Senator Wilson to reassert his influence. Constrained in recent years by Governor Tucker and a rival Senate faction, Wilson's power had waned. Wilson, however, was renowned for his ability to exploit such power vacuums.

*Emergence of higher education reorganization in the 1997 legislative session.* The 81st Session of the Arkansas General Assembly convened on January 13, 1997, amid much political turbulence. With a new governor, who was ill prepared for a rancorous legislative session, governmental insiders contemplated scenarios by which politicians would likely jockey to consolidate their positions. Few such scenarios failed to calculate the significance of Senator Wilson, whose recent conflict with fellow senators made it essential he exploit the imbalance. Because Wilson's protracted battle with senate colleagues had eroded his power in the upper chamber, the senator had begun cultivating alliances with members of the House of Representatives. These alliances resulted from a complex set of forces, but especially important was Wilson's senate patronage of two-year colleges, which held substantial sway in the House because of their grassroots nature and strategic dispersal around the state. Senator Wilson's advocacy of the two-year colleges had made him the institutions' undisputed legislative champion. Wilson leveraged this status to influence members of the House, whose political fortunes rested, in part, on the support of their local two-year colleges. Campus and state agency officials who served as study informants recounted, with a mixture of admiration and revulsion, how the senator used the two-year colleges as political currency. One university's long-serving government-relations officer commented:

> Wilson is a consummate political animal. He recognized that in order to maintain power in the Senate, he needed leverage in the House, and he had a vehicle [to accomplish this] in the 2-year schools. He organized the House around what he was doing for these schools. For someone who does what I do for a living, [this] was beautiful to observe. . . . The Senate belonged to

> [Wilson's opposition], but Wilson had the House tied up, and with no governor [as a] counterweight, the Senate couldn't do anything. That's [how he asserted] control in 1997.

On February 10, 1997, three weeks into the session, the presidents of the public campuses gathered at the state capitol for their weekly strategy meeting. Anticipation pervaded the meeting, for Senator Wilson had asked to address the group. Requiring but a few minutes to complete his remarks, the senator unveiled a proposal bearing remarkable likeness to the New Jersey Plan presented him a year earlier. Specifically, the senator proposed that the BHE be eliminated and that a new "Presidents' Council" be created to give campuses more control over their affairs. The Presidents Council would serve as the centerpiece of a new system of "self-regulation"of higher education in Arkansas, assuming many of the responsibilities of the current Board. Officials who attended the meeting described their colleagues as "surprised" and "stunned" by the proposal. Campus leaders were familiar with the New Jersey legislation through the *Chronicle of Higher Education* and from peers at professional meetings, but few had given serious consideration to such an initiative in their own state. Agency staff and legislators were surprised, too. A senior DHE official commented, "To say [we were] shocked and surprised at the idea of abolishing the Board and Department is a gross understatement; . . . no one was prepared for what Wilson unveiled."

The public rationale Wilson offered for the reorganization initiative was "excessive state bureaucracy" and "arrogant" bureaucrats in the Board and the Department. He also cited recent developments in New Jersey, and elsewhere, as evidence that "decentralization" was a national trend that Arkansas, too, should emulate. While few observers accepted as sincere Wilson's stated concerns for government efficiency, the rationale Wilson used helped lend public legitimacy to his proposal. Said one informant:

> I don't think Nick really understood or cared about the 'New Jersey plan', not at all. And he didn't care about the size of state bureaucracy. The [New Jersey] proposal was just something lying around at the right moment. Nick's justification made sense to some people—there was interest at that time to downsize government. But [reorganization] was really all about Nick's power base and [about] other historic developments. . . . It was an effort [of Wilson's] to endear himself to the two-year schools by getting rid of the Board, which the schools resented. The New Jersey Plan was a convenient tool at the right time and place.

Within days of Wilson's announcement, the issue of higher education "reorganization" was the chief topic of conversation in the higher education community. Issues that had been at the top of presidents' legislative agendas plummeted in importance as reorganization emerged as the one issue attracting everyone's attention. A senior DHE official, echoing the sentiment of all study informants, noted: "Very suddenly, [reorganization] was the only topic of discussion in the higher education community." The issue also garnered front-page coverage in the state's largest-circulation newspaper. Less than a month after Wilson's comments to the campus presidents, HB 2076, the higher education reorganization bill, was passed by the House Higher Education Committee and sent to the floor of the chamber for a vote. In April, following Senate passage of a scaled down bill, Governor Huckabee signed into law the higher education reorganization measure.[7]

When asked to reflect on the decentralization episode, interview informants with intimate knowledge of the course of events attributed the issue's emergence to a complex intersection of political forces that few, if anyone, had predicted. One such informant, a senior legislator, summed-up the impressions of many of those interviewed when he observed:

> This is complex, . . . but the substantive merits of decentralization had nothing to do with [the reorganization] issue. A few institution officials had wanted to be free of the Board, so somebody heard about this thing in New Jersey and thought it might be a solution. But it went nowhere at first because nobody cared about [it]. It was just dead. Then there was Tucker's sudden resignation—that undid everything. Wilson saw an opportunity . . . to link lots of things that didn't have much to do with one another [in order] to promote his own agenda. It was pure accident that everything came together when it did—accident, plus Wilson's opportunism.

### *University "Restructuring" in Hawaii*

In the spring of 1997, the University of Hawaii (U-H), a statewide multicampus system consisting of ten campuses on four islands, held the dubious distinction of being one of the nation's most highly regulated public university systems. State executive agencies exerted extensive control over key aspects of campus management, which was a function of the highly centralized nature of Hawaii state government. At that time, the issue of campus-state regulatory reform attracted very little interest from government officials, although numerous proposals to grant the U-H greater autonomy had arisen throughout the twentieth century. Such proposals had been discussed at the state's three constitutional conventions of 1950, 1968, and 1978, but each convention merely amplified ambiguities about the campus-state relationship. Academics and legislative staff also had produced, over the past several decades, numerous reports outlining specific ideas for autonomy, yet such reports simply accumulated (Potter, 1984). By 1997, U-H President Kenneth Mortimer, in his fourth year in office, repeatedly had called for a "new" relationship between campus and state, but elected officials showed little interest. Then, during a six-months period in 1997, the issue of "university restructuring" suddenly emerged as a hot-button topic when political and business elite endorsed the idea of granting the university "quasi-public corporate" status, thereby granting the institution greater control of its financial and administrative affairs.

*Economic crisis and political urgency.* By the end of the first fiscal quarter of 1997, elected officials and the general public believed that Hawaii's lingering economic malaise had become a crisis. Hawaii had entered a seventh year of feeble economic growth, leading the state budget department to declare, in April of 1997, that the economy was in the throes of a "structural transition" (DBEDT, 1997). Moreover, the state economy had begun to absorb the first aftershocks of the 1996 plunge in the Asian markets. Compounding the sense of crisis that surrounded Hawaii's economy were looming statewide elections. Although 18 months away, the elections already had become the focus of intense media scrutiny because of the economic stagnation and the scope of the election cycle—all 51 House members, one-half of the Senate, and Governor Benjamin Cayetano faced reelection. The political stakes were highest for Democrats, who held all of the important statewide offices but recently had faced increasingly stiff Republican opposition. A Democratic legislator of senior standing recalled his colleagues' dismal outlook:

> Foremost, everyone was terrified and frustrated by economic conditions at the time. We had an election coming up; . . . it was just real bad timing. We knew the economy would be the number one issue and if something wasn't done, a few of us might not be around [in the next legislature]. That's when the *task force* arose.

*The Economic Revitalization Task Force.* On July 25, 1997, Governor Cayetano, flanked by the senate president and house speaker, announced the formation of the blue-ribbon Economic Revitalization Task Force (ERTF). The product of high-level backroom discussions following the release of the April economic report, the ERTF's mandate was to devise "a package of proposals for invigorating the state's economy that could be translated into a series of bills" when the legislature convened in January 1998 (Yuen, 1997). The panel's 27 members included the "captains of industry" from every major economic sector—finance, tourism, organized labor, education, and the military. Included in the group was President Mortimer.

The ERTF, whose business was conducted behind closed doors, organized into five "workgroups" to develop recommendations for economic stimulus. Each workgroup was to independently develop proposals for economic stimulus that would be debated by the larger Task Force when the group reconvened in the fall. The education workgroup subdivided into two bodies, one focusing on K–12 education and a second on higher education. From the outset, the focus of the higher education subgroup was single-minded articulation of a proposal granting the U-H more management authority. According to members of the ERTF interviewed for this study, the idea originated with President Mortimer, who raised it at the first meeting. The president's colleagues, being familiar with the frustrated history of governance reform in Hawaii higher education, understood that Mortimer's term, 'university flexibility,' referred to devolution of decision authority from the State to the University. One participant recalled, "We talked the same language. We thought of 'flexibility' in the traditional way—to take the [state] bureaucrats out of things, to allow the U-H to become like the better [universities] on the mainland."

The subgroup began to consider the operational details of alternative flexibility proposals. One idea, advanced in previous legislative reports, was that of patterning the University of Hawaii after the constitutionally autonomous University of California system. This idea, however, was rejected in favor of transforming the U-H into a "quasi-public corporation." The notion of converting public agencies into *quasi-public* entities had already found its way into the lexicon of state elected officials, as well as into state statute. One study informant recalled, "Some of us remembered that there was precedent for granting state run agencies extra powers by making them quasi-public agencies. So, we borrowed the idea." The precedent to which the informant referred was the legislature's recent decision to privatize a state-run hospital by granting it "quasi-public" status, thus permitting the hospital to manage its affairs absent stringent state oversight. Another subgroup member recounted his colleagues' familiarity with the hospital legislation and with the recent privatization trend in Hawaii:

> We modeled [the university flexibility proposal] after the state hospital system being turned into an independent entity. 'Quasi-public' was the [term] used at that time. The idea of turning [public agencies] into semi-private agencies had come into more common usage. Even the governor had jumped onto the privatization bandwagon. This is where the idea [for university flexibility] came from.

The subgroup decided to "borrow" the term "quasi-public" to refer to their as-yet unspecified university flexibility initiative.

*Linking university autonomy with state economic development.* In the three weeks between the final meeting of the university workgroup and the reconvening of the ERTF in late-October of 1997, the idea of reforming the campus-state regulatory relationship in Hawaii became linked with the goal of state economic development in the minds of influential business leaders who served on the task force. This linking of the university flexibility and economic development issues, two issues that historically had little association with one another, redefined the 'campus-state question' into a very different kind of question than that which had periodically arisen in Hawaii. Informants close to the sequence of events attributed the linkage to the advocacy efforts of President Mortimer.

Historically, efforts to secure greater operational autonomy for the University of Hawaii were couched in terms of academic freedom—greater freedom for the university was necessary to protect the core academic function of the institution and to raise the reputation of the university vis-a-vis its mainland counterparts. However, in the weeks prior to the reconvening of the ERTF, Mortimer asserted in private conversations with task force members that, if freed from excessive oversight, the university could become more "entrepreneurial," thus spurring economic development in the state. The freedoms that Mortimer sought included the authority of the university to manage its budget and lands, to negotiate faculty contracts, to procure its own goods and services, to manage auxiliary enterprises, and to retain its own legal counsel. A legislator related his understanding of the distinction between the older and the newer conceptions of autonomy:

> The [traditional] way of defining [university] 'autonomy' . . . centered on the benefits [which accrue] to the University. But when the issue arose in the ERTF, [autonomy] was defined in terms of benefits to the state. . . . 'If we free the University from state bureaucracy, then it can partner more [with industry], helping the economy.'

When the ERTF reconvened to adopt its legislative recommendations, substantial differences of opinion emerged about many of the proposals presented. Among the most controversial were the proposals to change Hawaii's tax structure and to consolidate various state regulatory agencies. However, little dissension surrounded the proposal to make the UH a *quasi-public corporation.* Among the 32 recommendations the ERTF publicly announced on October 22 was one to "restructure the University of Hawaii into a quasi-public corporation with independent accountability" (Perez, 1997). Hence, the proposal to decentralize the UH was adopted as a key strategy for economic renewal, despite little evidence or sustained discussion within the ERTF about the alleged economic impact of the university measure.

As the 1998 legislative session got underway, the issue of restructuring the campus-state relationship gained irresistible momentum. Despite immense expectations by the media and the general public that the bulk of the ERTF's recommendations be enacted as some form of economic stimulus package, differences between state business and labor interests doomed many of the proposals in legislative committee or on the chamber floors (Omandam, 1998). In sharp contrast, support for the university restructuring proposal, a relatively innocuous and politically feasible idea, strengthened. One month into session, higher education committees in both chambers passed similar restructuring bills crafted along the lines originally set out by Mortimer and his workgroup colleagues. In June 1998, Governor Cayetano signed the decentralization measure into law, claiming it as a momentous victory both for higher education and for economic development in Hawaii. Press accounts and editorials labeled Public Act 115 as a "Magna Charta" for the University of Hawaii. Senior university officials labeled the legislation "the most significant victory for higher education in 40 years." In November, Cayetano and Democratic legislative leaders won their reelection bids, having made the university legislation a prominent campaign theme. Democrats retained control of the General Assembly. One senior university official offered this assessment of the electoral significance of the legislation:

> Everyone was looking to the general election. When [the autonomy legislation] passed, it became everyone's 'going-home' stuff. The governor referred to it in campaign speeches. Legislators . . . told constituents they had freed the university from excessive state regulation. Everyone claimed it was good for the university and good for the economy; . . . they didn't let voters forget it.

Interview informants retrospectively cited "timing" as the critical factor in the emergence of the university restructuring issue. They noted that the issue of campus-state regulatory reform had circulated "beneath the surface" of the governmental agenda for years, emerging as a hot-button issue in the summer of 1996 only when it converged with several unexpected developments: a deteriorating economy, a volatile election season, and the creation of a task force to identify solutions for the state's troubled economy. A senior campus official reflected on the unusual convergence of forces that elevated the issue onto the governmental agenda:

> The stars just aligned. . . . The politicians were looking for an election issue, the business community had been looking for years for some kind of economic development initiative, and the UH [had] . . . been looking to expand its powers. The task force, and then Mortimer's pitch about autonomy, pro-

> vided the opportunity. So, it was about the ERTF, the economy, the political crisis, the composition of the panel, timing; . . . it all tied together perfectly.

### *Decentralizing System Governance in Illinois*

One of the most heated debates of the 1993 Illinois General Assembly centered on a proposal to disband the state's renowned "system of systems" for higher education, a complex structure consisting of four multicampus boards for public universities, a community college system, a private college sector, and a state coordinating board. Specifically, the proposal sought to abolish two multicampus governing boards, the Board of Governors (governing five campuses) and the Board of Regents (governing three campuses), establishing in their place local boards of trust for seven of the eight campuses in the two systems. While the idea of eliminating the boards had periodically surfaced over the course of several decades, few elected officials paid the idea serious attention, as legislators and campus officials were generally content with Illinois' well-regarded higher education system. In the span of a few months in 1992, however, the "decentralization" issue became the most prominent higher education issue facing lawmakers.

*The Edgar administration: Challenges confronting Illinois' "education governor".* In early 1991, newly elected Illinois governor James (Jim) Edgar's prospective education agenda, which he had pledged to make the top priority of his administration, was imperiled by three major challenges. First, Illinois was experiencing the economic downturn that had spread throughout the nation, and newspapers were beginning to focus attention on "the coming recession" (Gruber, 1991). A second obstacle involved Edgar's campaign pledge to reduce taxes and the size of state government, a pledge which, together with the economic downturn, now made the prospect of increased funding for education at all levels quite unlikely. A third challenge was that Democrats had already, in the words of one interview informant, "cornered the market" on prominent education issues such as Chicago school reform, thus denying the new administration an education reform issue of its own. This three-fold dilemma became manifest in the governor's first budget proposal, which he presented to the General Assembly two months after taking office. The budget provided only $30 million in new money for the state's $2.1 billion school aid allocation and no increase for higher education, a move the administration acknowledged would translate into large tuition increases at Illinois campuses. The budget proposal drew sharp criticism from Assembly Democrats.

Largely unnoticed amidst the budget wrangling was the introduction, in January 1991, of a bill calling for the elimination of the Board of Regents and Board of Governors. The sponsor of the bill was a Republican whose district included a Board of Governors campus. As with similar bills the member previously had introduced, the 1991 version stood little chance of passage because legislators were disinclined to alter the current higher education design. Of foremost concern to campus and elected officials was the acute state budget crisis.

*Lt. Governor Kustra's "gaffe."* In October 1991, nine months into Edgar's term, and a few months into economic recession, Lieutenant Governor Robert Kustra appeared before the Macomb, Illinois Chamber of Commerce as part of a whistle-stop tour intended to remind the business community that the new administration was sensitive to its concerns. Instead, Kustra's speech in Macomb, home to Western Illinois University, a Board of Governors institution, helped catapult the university decentralization issue onto the governmental agenda. One senior administration aide who attended the speech recalled:

> As a habit, [Kustra] didn't use notes when he [spoke]. So, [he] started delivering this stepwinder of a speech, without knowing exactly [what he'd] say. But, [Kustra] knew Macomb is a university town and that they wanted their local university to have its own board of trustees because no one liked being part of the Board of Governors. So, [Kustra] began talking about this and that and before you know it, [he proposed] doing away with the Board. . . . "Let's give Western Illinois the board it deserves" [he said]. But the press was there—taking notes.

The headline in the next day's local paper read, "Lt. Gov. Proposes Shake-Up for WIU Board."

The lieutenant governor's remarks would surely attract attention. Kustra, the administration's point-man on education issues, was a higher education insider who had served on the faculty of several Illinois colleges. Additionally, he had chaired the Senate Education Committee during his ten-year legislative career. Kustra's perspective on Illinois higher education had been shaped by several episodes in which the alleged spending excesses of the regional governing boards attracted negative attention to higher education. The collective weight of Kustra's experience and position within the administration gave the lieutenant governor's remarks in Macomb a potency that exceeded his intentions, according to interview sources close to events. Concern over the potential ramifications of the published remarks led Kustra to seek Governor Edgar's counsel upon returning to the Capitol. A senior administration official who was present during the conversation recounted the exchange:

> [Kustra] popped [his] head into [the governor's office] and said, "Hey, I need to talk a few minutes here. You know how strongly I feel about these governance [issues]. Well, I kind of went out on a limb and said we should get rid of the Board of Governors and [Board of] Trustees. I was really talking off the top of my head. I don't want to embarrass you." Edgar replied, "Embarrass me? Shoot, I think it's a good idea. When will we do it?"

Governor Edgar's ready acceptance of Kustra's gaffe owed in large part to the governor's own past experiences with the Board of Governors and Board of Regents. Such experiences, including one in which the Board of Governors dismissed from the presidency of one of its campuses a personal friend of Edgar's, had by all accounts soured him on the boards.

*Formation of the "Governor's Task Force on Higher Education."* The Illinois General Assembly convened in January 1992 amidst intense partisan bickering between Governor Edgar and Assembly Democrats over the best way to address Illinois' deeply troubled economy. Against the backdrop of budget stalemate, the governor delivered his State-of-the-State speech on January 27, three months after Kustra's comments in Macomb. In the speech, Edgar urged the legislature to make across-the-board budget cuts. He also publicly aired for the first time the idea of abolishing the Board of Governors and Board of Trustees. There was little public reaction—Illinois' budget woes and the upcoming November elections dominated the attention of policymakers.

In April, Governor Edgar presented his proposed FY1993 budget to the General Assembly, his second budget without a university funding increase. Instead, Edgar voiced strong support for the idea of abolishing the two governing boards, and he called for the creation of a task force to study how the state could save money by "trimming the higher education bureaucracy." A week later, he announced the formation of a blue-ribbon commission, the Governor's Task Force on Higher Education (GTFHE), and appointed Kustra co-chair (Vitale, 1992). Observers assumed that the panel would move quickly to adopt a specific board-elimination proposal, since the governor already had advocated abolishing the boards. The panel's creation attracted instant press coverage, with both *The Chicago Tribune* ("Realign") and *Chicago Sun-Times* ("Streamline") running editorials in support of the idea.

The ten-member GTFHE held its first meeting in Springfield, Illinois in May 1992, in closed-door session. According to one participant, the group was "already of one mind to 'go after' the two [boards]." The panel agreed to reconvene in June so that final recommendations could be sent to the governor. At the second meeting, opened to the public after a newspaper brought suit against the commission, leaders of Illinois' four university systems unanimously appealed for the Board of Regents and Board of Governors to be retained. The leaders vigorously contested the arguments that had been made for "decentralization," arguing that the current system-of-systems design was effective and that the board-elimination measure would not reduce costs, as the governor and the task force alleged. This testimony did little to change the minds of task force members. Despite clear or compelling "evidence" indicating that higher education decentralization would have the beneficial effects its proponents claimed, the GTFHE released its report on June 19 recommending that the two governing boards be abolished and that local boards be created for seven of the campuses in the two university systems (GTFHE, 1992).

The report's release galvanized Republican support for the decentralization initiative. When the General Assembly convened in 1993, the higher education decentralization bill, shepherded by the lieutenant governor, moved rapidly through the Republican-held upper chamber. In the House, however, the bill ran into insurmountable opposition from the Democratic majority. Although higher education decentralization remained a high-profile topic for the duration of the 1993 legislature, Democratic House control prevented enactment. Legislative passage was not assured until November 1994 at which time Illinois Republicans, mirroring the Gingrich-led sweep of the U.S. Congress, captured the governor's office and the Assembly in a dramatic sea-change election. On the night of the election, Governor Edgar and Lieutenant Governor Kustra, who still considered the higher education decentralization issue a personal priority, agreed by telephone to include their original decentralization proposal as part of the governor's so-called "Fast Track" legislation. Three weeks into the 1995 legislative session, Governor Edgar signed the university decentralization bill into law.

In reflecting on the course of events in Illinois, virtually all interview informants attributed the emergence of the university decentralization issue to a serendipitous convergence of political and economic forces that transcended higher education. They cited the intersection of several parallel developments—economic recession, the indeterminate future of Edgar's education agenda, withering criticism from Assembly Democrats about the administration's apparent lack of a coherent education agenda, Kustra's Macomb gaffe, and a general concern for reelection—as having played a determinative role in the unanticipated appearance of the decentralization issue. One campus president succinctly captured the sentiment of many informants, remarking:

> Timing, plus unforeseen events, made it possible. The economy helped provide a rationale to proceed, but the idea of [eliminating] the boards went

> back years—the idea to decentralize was simply sitting around. It was about timing, [Edgar and Kustra] in office, the bad economy, and the need of political leadership to find an education agenda. [A] lot of unrelated things coming together made the issue come to life.

### *Study Findings*

This study examined the public policy formation dynamics by which an important campus-state regulatory issue, decentralization of higher education, first emerges on the decision agenda of state governments. While the three decentralization cases studied vary in sociopolitical make-up and in the nature of initiatives pursued, several findings converge across cases.

First, the issue of decentralization achieved the state governmental agenda neither through a rational, problem-solving process nor as one more step in a series of incremental policy initiatives. Instead, the process of governmental agenda setting for higher education decentralization strongly resembled the "garbage-can"-like dynamics described by Kingdon in his study of agenda formation at the national level of American government. Against the backdrop of intermittent conflict between campus and state, three loosely related streams of activity drifted through each state governmental system: a stream of state political forces, a stream of problems bearing little direct relation to higher education, and a stream of decentralization solutions. Although the different streams of activity were not entirely unrelated to one another, they exhibited a surprising degree of independence—to paraphrase Kingdon, the campus-state interface produced its varied conflicts, campuses pushed their pet decentralization solutions, state governments generated their own problems, and politicians sought reelection. Out of the disconnectedness, higher education decentralization emerged as a "hot-button" issue when one or two individuals in each state recognized politically propitious moments in time to couple existing decentralization "solutions" with previously unrelated problems.

Additional findings provide support for a "Revised Garbage Can" interpretation of decentralization agenda setting. A second, and ironic, finding is that higher education decentralization became established on the state governmental agenda for reasons that were weakly related, even unrelated, to conflict over autonomy and control within the higher education policy domain. While episodes of campus-state conflict were sometimes important in the development and dissemination over time of specific decentralization ideas, such conflict did not serve as the primary stimulus to the emergence of each state's focal decentralization issue. Rather, the issue of higher education decentralization achieved prominence on the governmental agenda when existing decentralization solutions (solutions borrowed from other states, borrowed from other policy domains in the same state, or developed earlier in time within the state's higher education community) became linked to problems of broader concern to policymakers (problems involving the economy, state budgets, or debates over the size of government) during periods of political volatility or electoral crisis.

Third, higher education agenda setting was characterized by a seemingly "irrational" sequence of problem identification and solution generation. Decentralization "solutions" did not originate in direct response to the problems with which they became publicly associated. Rather, solutions were developed independently and in advance of the problem for which proponents of the solution later claimed they were the answer. Once introduced into circulation, decentralization solutions floated around the higher education community, or in some other policy domain, awaiting the right problem (a problem "larger" than higher education) and the right political conditions (regime change and electoral crisis or conflict) to which they might become attached.

Fourth, in sharp contrast with conventional (Incrementalist) assertions about the nature and pace of policy change, higher education decentralization moved rapidly to a place of prominence atop the state governmental agenda. Each state's respective decentralization issue developed quite suddenly, traveling from the outmost periphery of policymakers' attention to become a topic of serious discussion and debate in a relatively short period of time.

A fifth finding involves the relative influence of various policy actors in the decentralization episodes. Namely, one or two individuals in each state played a determinative role in the course of decentralization agenda setting. In Arkansas, a lone legislator almost single-handedly elevated the decentralization issue to a place of prominence on the policy agenda. In Hawaii, a single campus president figured most prominently in his state's agenda episode. In Illinois, the governor and lieutenant governor were chiefly responsible for the advancement of the decentralization issue in their state. Of note, both through their action (resignation or creation of blue ribbon panels) and their inaction (inexperience or insufficient influence), governors in all three states affected the climate and structure of agenda change, sometimes without intending to do so.

### *A Policy Streams Model of Decentralization Agenda Setting*

The convergence in findings across states permits the formulation of a grounded conceptual model (Appendix A) depicting how higher education decentralization emerges as a hot-button issue on the state governmental agenda. This section of the article outlines the *Policy Streams* model's key elements and relationships. The subsequent section addresses several theoretical implications of the model and explores the model's prospects for explaining a range of higher education policy phenomena beyond that of the present study.

The conceptual model portrayed in Appendix A builds on Kingdon's Revised Garbage Can framework, but modifies it to account for contextual conditions arising in state government, in the domain of higher education, for the particular issue of campus-state regulatory reform. The model conceives of state governmental systems as "garbage can"-like in nature, embodying paradoxical elements of clarity and ambiguity, order and anarchy. Problems, participants, and solutions drift through the governmental system in relatively independent fashion. Yet, embedded in the seeming disconnectedness is a discernible dynamic linking several sets of processes that result in the emergence of the decentralization issue on the governmental agenda. This dynamic is the coursing of distinct "streams" of activity, against a backdrop of campus-state conflict, which become linked at particular moments in time by *Issue Opportunists* seeking to couple decentralization solutions with problems of broader statewide scope and with propitious political developments. This opportunistic coupling of different streams of activity bearing only nominal relation to one another is the chief mechanism by which the decentralization issue emerges as a hot-button topic attracting the serious interest of state policymakers.

The model conceptualizes state government as enveloped by regional, national, and global macrosystems, which bear upon higher education policymaking by providing flows of stimuli (informational, ideological, material, and political) into the major streams that course through state government. As the case summaries in this study amply show, the national political landscape and global or regional economic developments can exert profound, if sometimes indirect, influence on policymaking to reform the campus-state regulatory relationship.

Multitudinous sources of strain between public campuses and the state entities that interface with them are an enduring reality of the campus-state relationship and an embedded feature of the conceptual model. Such conflict, whether latent or manifest, results from various stressors: constitutional ambiguities, resource constraints, turf battles, and clashes in ego, personality and style of campus or state leaders. A critical point to be made with respect to this backdrop of campus-state conflict is that, prior to the convergence of political, problem, and solution streams, conflicts that appear to campus officials as "problems" are likely to be regarded by state elected officials merely as "conditions" of little concern. In other words, while campus officials interpret campus-state conflicts as "problems" deserving of decentralization remedies, state elected officials view such episodes (to the extent that they notice) as conditions of insufficient importance to warrant serious consideration on the crowded policy agenda. It is not until the idea of decentralizing higher education becomes viewed as a solution to other kinds of problems that the underlying currents of conflict garner the attention of politicians.

The *State Political Stream*, the first of three separate streams of activity conceptualized to flow through the governmental system, consists of the routine cycle of political events in a state, as well as the singular political occurrence that creates disequilibrium within the system. Drifting along within the Political Stream are regularized decision opportunities, such as elections, that result in legislative, gubernatorial, and administrative turnover. This stream also includes the ebb and flow in influence of individual legislators, the balance of organized interests, and partisan rivalry. Occasionally, catalytic events can create crisis throughout the system. Sea-change elections, gubernatorial resignation, and fallings-out among legislators are some of the conditions that provoke conflict of unusual intensity, resulting in the opening of an *Issue Window* (technically, a "Political Window," about which more is said below) within which existing decentralization solutions may become linked with other kinds of problems.

Constituting a second stream of activity, the *State Problem Stream*, are the various "conditions" political elite have defined as "problems." At any given time, state officials have chosen to interpret certain conditions as problems meriting their attention. Higher education decentralization solutions tend to become "attached" to several particular kinds of problems: state economic stagnation or decline, budget crisis, and debate over the size and function of public bureaucracy. A problem defined in very severe terms may create an *Issue Window* (technically, a "Problem Window") within which an existing decentralization solution emerges.

There are three ways solutions become part of the *Stream of Decentralization Solutions*. Solutions may be imported into one state's higher education arena from another state's higher education arena. Here, campus officials borrow ideas from other states that already have experimented with campus-state reform. Such dissemination requires specialized knowledge of developments occurring in higher education, which campus officials obtain through interpersonal exchanges, professional meetings, or trade publications. Decentralization solutions also may be borrowed from other policy arenas within the same state; devolution precedents in K–12 education or health care provide advocates with ready-made solutions to use when the right alignment of problems and politics occurs. Lastly, solutions may be developed within the higher education community. Although the solutions that gain currency among campus officials are directly related to the conflict campuses experience with state government, over time specific solutions do not remain tightly coupled with the conflicts that first produced them. Finding no problem that will propel them before state policymakers, solutions may lie dormant for years, later becoming attached to an entirely different problem than the one that first brought them either into existence or circulation.

Finally, *Issue Windows* are opportunities in time where, under the kinds of political conditions noted earlier, existing decentralization solutions may become linked with problems of statewide scope. Issue windows are brief in duration and may be one of two types: *political windows,* which open in response to political crisis, or *problem windows,* which open when policymakers interpret some "condition" as sufficiently serious to warrant remedy as a "problem." Ironically, the issue of decentralizing higher education arises during the opening of political or policy windows, *not* in direct response to episodes of campus-state conflict. When windows open, *Issue Opportunists* may attach decentralization solutions to problems of broad appeal, and thus propel higher education decentralization onto the agenda.

## *Discussion and Implications*

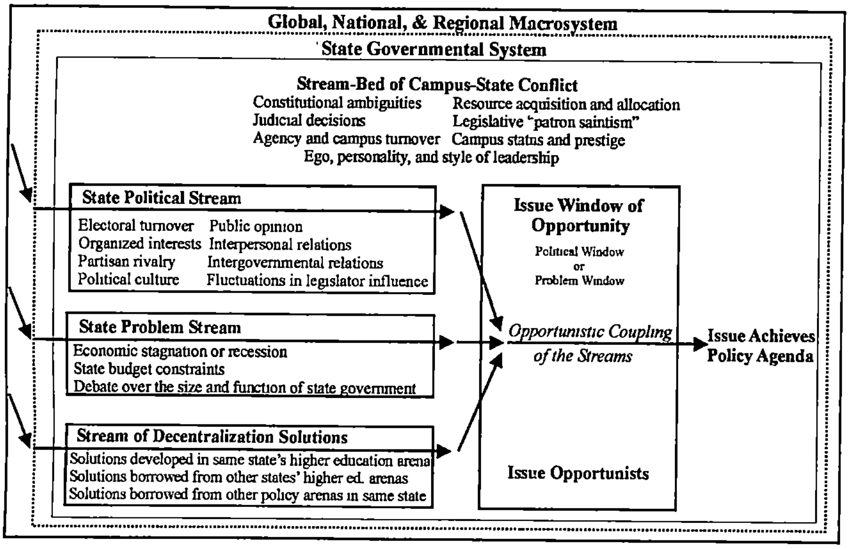
The findings of this study pose provocative implications for the development of a conceptual literature on higher education policymaking in the states. The study's findings challenge the prevailing view of higher education policymaking as necessarily gradual, serial, and predictable—in a word, "Incremental." Building on contemporary developments in political science, this study argues for an alternative conceptualization of state higher education policy formation that diverges from incrementalism. The "garbage can" view of policymaking advanced here portrays the policy process as embodying paradoxical elements of clarity and ambiguity, order and anarchy, pattern and unpredictability. On one hand, elements of clarity, order, and pattern are seen in the structure of the individual streams of activity and in the rhythm of routine events occurring within the streams. Yet elements of ambiguity, anarchy, and unpredictability are found in the specific coupling of problems, solutions, and politics; indeed, many different couplings are possible, depending on the precise mix of metaphorical "trash" floating in the governmental garbage can at the time an *Issue Opportunist* conjoins the streams. While Incrementalism may be the best explanation of state budgetary behavior, insofar as the substantive policy agenda for higher education, change can occur abruptly, rapidly, and unpredictably. The study, therefore, invites further specification and elaboration of the conditions under which higher education policymaking proceeds non-incrementally.

Like all conceptual models, the *Policy Streams* framework attempts to lend clarity to complex phenomena by ordering and simplifying reality and by identifying significant interlocking relationships (Dye, 1995). The extent to which this particular representation accurately reflects higher education policy processes across the states is unclear. Yet this new conceptualization provides higher education researchers with an alternative set of hypotheses to guide future investigation, and it aligns the higher education literature more closely with recent trends in political science—trends emphasizing dynamism and fluidity in American political systems (Baumgartner & Jones, 1993; Dodd & Jillson, 1994). Of course, as the first *comparative* analysis of state-level agenda setting for higher education, the study begs replication in other contexts. Theoretical elaboration and empirical testing go hand in hand. Although this investigation documented a conspicuous similarity in findings across a diverse sample of cases permitting the articulation of a conceptual model, replicating the study in other states may provide a stronger argument (or a weaker one) both for the findings and the model advanced. Of particular significance is the question of the "analytic generalizability" (Yin, 1994) of the *Policy Streams* model to explain different, but conceptually related, campus-state regulatory phenomena. To what extent, for example, does the grounded conceptual model help explain policy formation at the other end of the campus-state reform continuum—i.e, *centralization* of authority at the state level? Assessing the explanatory power of the *Policy Streams* model as it relates to a range of governance reform phenomena seems a worthwhile conceptual endeavor.

The several components of the *Policy Streams Model* also beg elucidation. For instance, a very interesting set of questions arises as to the "diffusion of innovation" (Berry & Berry, 1999; Gray, 1973; Walker, 1969) in higher education governance reform across the American states. This study documented some interesting ways decentralization ideas migrate across states and across policy arenas within the same state, but more systematic inquiry is needed to specify the nature of the migration. What is the speed and pattern of adoption of campus-state regulatory change among the states? How and to what extent do states borrow ideas from one another when reorganizing their systems of higher education? Is there, as Jack Walker (1969) found in his landmark study of policy diffusion, a regionally based (or national) system of "competition and emulation" (p. 898) in the higher education policy adoption behavior of the states? Of course, similar questions could be asked about a range of policies other than that of campus-state regulatory policy. As political scientists have learned, such questions are complex ones, both theoretically and empirically (Berry & Berry, 1999). Perhaps it is due to such complexity that only a single published, empirical study (Hearn & Griswold, 1994) exists on the determinants of state policy innovation for higher education and no extant research addresses questions of governance innovation, in particular.

One additional implication that deserves attention pertains to the politically instrumental nature of higher education. In all three cases studied, the decentralization issue emerged when long-standing conflicts over the locus of autonomy and control in higher education converged with the more immediate electoral interests of political incumbents. More precisely, the decentralization issue became positioned for decisive action when state politicians recognized it as a partial answer to electoral distress. Although little is known about higher education's involvement or influence in state electoral processes and outcomes (McLendon & Hearn, 2003), this finding suggests the need for further exploration of the contours of a potential higher education-electoral "connection."

A final implication involves the way issues advocates advance their causes before state government. Because the rules of "garbage can" policymaking are quite different from those of incremental policymaking, issue advocates must think unconventionally about the advancement of their pet causes. Advocates would do well to recognize that success in the metaphorical garbage can of state government may not necessarily accrue to those with the best argument, or to those who persist longest, or even to those with the most impressive resources—although compelling logic, extraordinary endurance, and political capital indeed may prove critical at certain junctures. What seems more important is an appreciation of *contingency*. A lesson to be learned from the Issue Opportunists profiled in the cases is that successful advocacy requires ready solutions and an ability to move quickly when windows of opportunity open. Having solutions in hand is crucial; issue windows are too short-lived for "solutions" to be developed anew. Also, because problems and solutions are subject to "loose coupling" in the governmental garbage can, a given solution (like decentralization) can serve as an "answer" to many different kinds of problems, even those for which it was never intended as an answer. As in the garbage can of university decision making first articulated by Cohen, March, and Olsen (1972), issues arising in government tend to become entangled with many unrelated problems and solutions simply because those other problems and solutions already exist at the time a focal issue comes before government officials. In this decision environment, effective advocacy depends upon neither the strictness of means-end hierarchies nor the accumulated momentum of policy history. Rather, effective advocacy derives from the diligence of attaching pet solutions to the varied problems floating through government, no matter how "irrelevant" the problems may appear to the desired solution.


Global, National, & Regional Macrosystem
State Governmental System
Stream-Bed of Campus-State Conflict
Constitutional ambiguities
Resource acquisition and allocation
Judicial decisions
Legislative "patron saintism"
Agency and campus turnover
Campus status and prestige
Ego, personality, and style of leadership
State Political Stream
Electoral turnover
Public opinion
Organized interests
Interpersonal relations
Partisan rivalry
Intergovernmental relations
Political culture
Fluctuations in legislator influence
State Problem Stream
Economic stagnation or recession
State budget constraints
Debate over the size and function of state government
Stream of Decentralization Solutions
Solutions developed in same state's higher education arena
Solutions borrowed from other states' higher ed. arenas
Solutions borrowed from other policy arenas in same state
Issue Window of Opportunity
Political Window
or
Problem Window
Opportunistic Coupling of the Streams
Issue Opportunists
Issue Achieves Policy Agenda

APPENDIX A: A Policy Streams Model of Decentralization Agenda Setting

## Notes

[1] Coordinating boards were created with a "dual obligation" to campus and to state, but debate has long ensued over the precise nature of their orientation. The earliest coordinating boards were planning bodies with limited authority (Glenny, 1959), but the scope of their authority expanded as states replaced weaker boards with stronger ones. The dramatic growth in the number of states with *regulatory coordinating boards* during the 1960s and 1970s later led many observers to characterize coordinating boards as an "agency of state government" (Millett, 1982, p. 62), whose role "is one of advocating the state's interest in higher education, not that of institutions" (p. 113). In 1976, the Carnegie Foundation similarly concluded: "In practice . . . such agencies have been red-hot pokers pointed at higher education" (p. 15).

[2] In this study, the term *decentralization* refers to legislative transfer of decision authority from "higher", or more central, levels of state or system control to more local levels of campus control.

[3] There are various ways to conceptualize the policies states have pursued in devolving authority closer to the campus level. For example, Berdahl and MacTaggart (2000)

recently have written about the notion of the 'charter college.' In exchange for being granted their own board of trust and greater discretion in managing their administrative affairs, charter colleges would agree to meet certain predetermined performance goals and would limit their annual appropriation request from the state. The authors characterize St. Mary's College of Maryland as one successful example of the charter college idea.

[4] Agenda-research typically involves the study of opaque policy processes. Because such conditions can affect the reliability of interview data obtained, the first criterion of sample selection helped ensure the contemporaneousness of data collected.

[5] The seven differentiated dimensions of agenda formation included the following: the nature and extent of rationality exhibited by policymakers; stimulus to the issue's rise on the agenda; clarity of policymakers' goals and preferences; the relationship of problem-identification and proposal-generation processes; pace and predictability of the issue's rise on the agenda; recency of the issue's last appearance on the agenda; and relative influence of policy actors.

[6] In order to ensure consistent analytical parameters, the policy "agenda" of a state was defined as consisting of those select issues for which committee bills had been passed in either chamber of the legislature. It is important to note that the case summaries focus on agenda setting, rather than on the dynamics attending legislative enactment of the bills.

[7] Although the reorganization bill that was eventually enacted, HB 2076, contained more modest provisions than those Wilson originally had proposed, the legislation did in fact increase the power of the individual campuses vis-a-vis that of state officials. The legislation reconstituted the coordinating board, specifying its role to be that of statewide coordination, rather than statewide governance, of higher education and altering the composition and selection processes of board membership so as to ensure strong institutional representation. The bill also established a Presidents Council with (1) advisory responsibility for the selection of the executive director of DHE and (2) control of the coordinating board's policy agenda.

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Kathleen E. Hill

# Understanding Patterns of Commitment

## Student Motivation for Community Service Involvement

Increased interest in and attention to community service in both high schools and colleges suggests the importance of understanding *why* students participate in community service activities. The literature clearly supplies evidence for high-school students' interest and participation in community service. Data on high-school seniors from the 1970s through the 1990s suggest that 22–24% of seniors report consistent service involvement (Youniss, McLellan, & Yates, 1999). Results from a recent survey conducted by The National Center for Education Statistics of the U.S. Department of Education report that 83% of all public high schools had students involved in school sponsored community service activities and 46% offered service-learning opportunities in the classroom (Westat & Chapman, 1999). Findings from the 2000 survey of first-year college students report that just over 81% of students had performed volunteer work in the past year. However, only 22.7% of students indicated that it was important to participate in a community action program, and 30.9% indicated they valued becoming a community leader (Higher Education Research Institute, 2001).

While research suggests that participation in community service in high school predisposes students to continue their involvement in college (Astin & Sax, 1998; Astin, Sax, & Avalos, 1999; Berger & Milem, 2002; Vogelgesang & Astin, 2000), only 23.8% of first-year students in the 2000 survey sample indicated that the chances were very good that they would participate in volunteer or community service work (Higher Education Research Institute, 2001). These data raise questions

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about why high-school students are volunteering, the motives high-school and college students provide for involvement, and the relationship between high-school community service and college participation.

Using Selznick's (1992) theory of social participation, which distinguishes between core (connected to identity, motivated by values, and more consistent in nature) and segmental (connected to extrinsic factors, motivated by personal interests, and sporadic) participation, findings from a study on a national sample of high-school students suggested that student interests and personal goals, values, and normative environments influence high school-seniors' participation in community service (Marks & Kuss, 2001). Further, in a study that followed these same students into their college years, the extent to which these students persevered as participants in community service after high school appears to be related to patterns established in high school as well as whether or not students have internalized their reasons for participation (Marks & Jones, in press). This investigation builds upon the work of Marks & Kuss, and Marks and Jones by using a constructivist approach to understand student perceptions of their patterns of participation from high school to college. An earlier study conducted by Serow (1991) demonstrated that qualitative methodologies resulted in far greater depth of understanding of the phenomenon of motivations for community service than "requiring them [students] to choose among prepackaged responses" (p. 552).

Although some research suggests that patterns identified in high school are typically carried over into college (Astin, Sax, & Avalos, 1999; Berger & Milem, 2002; Marks & Jones, in press), little is known about changes in motivations from high school to college or the meaning students attribute to their motivations. Several studies have focused on college student motivation for involvement in community service activities. Typically, reasons have been organized into the categories of altruistic, egoistic, and obligatory (Berger & Milem, 2002; Fitch, 1987; Marotta & Nashman, 1998; Serow, 1991; Winniford, Carpenter, & Grider, 1997). In one study when asked why they were involved, 80% of student respondents cited personal satisfaction from helping others, 56% gave as a reason a perceived requirement through a course or organization, and 54% indicated a sense of responsibility to correct social and community problems (Serow, 1991). Berger and Milem concluded that understanding students' motivations to serve is related to producing positive outcomes associated with community service as well as increasing the numbers of students involved in such activities.

A few studies have connected motivation to participate in community service to the identity development process for both high-school and college students (Rhoads, 1997; Youniss & Yates, 1997). In both studies, community service contributed to the process of the development of a sense of self and social responsibility. Involvement in community service engaged students in developing greater knowledge of self through meaningful work with others, which resulted in the development of both a personal and collective identity (Rhoads, 1997; Youniss & Yates, 1997). Further, Youniss and Yates found that high-school student interest in continuing community service depended upon factors such as the level of reflective thinking and family and peer influences on volunteering. They concluded, "High school commitment cannot be linked simply to adult behavior without taking account of such communities that encourage and shape the direction individuals take in their identity development" (Youniss & Yates, 1997, p. 115).

Baxter Magolda (2000, 2001), in her work on the development of self-authorship, described a process in which young adults move from external, formulaic definitions of self to an internal foundation of identity that integrates relationships with others. She speculated that well-designed service-learning programs provide the opportunities for the development of self-authorship in students. Applying the work of Baxter Magolda to Selznick's (1992) theory of social participation suggests the possibility that core (internally motivated by values) or segmental (externally motivated by personal interests) participation may be influenced by where students are in the identity process.

The purpose of this study was to uncover the meaning students make of their participation in and motivations for community service and to develop an understanding of students' perceptions of their own patterns of participation in community service. In particular, the relationship between high-school involvement and college participation was explored. The guiding research questions for this study were: What are students' reasons for participation in community service in high school? What are students' reasons for participation in community service (or not) in college? How do students explain and understand the relationship between high-school and college involvement? To what do students attribute differences/changes in their motivations as well as experiences?

## *Methodology*

The exploratory focus of this study led to a constructivist approach to the design. A constructivist approach "assumes a relativist ontology (there are multiple realities), a subjectivist epistemology (knower and respondent cocreate understandings), and a naturalistic (in the natural world) set of methodological procedures" (Denzin & Lincoln, 2000, p. 21). This approach was well-suited to the study because the aim of our inquiry was understanding students' construction of meaning and their perceptions about their own patterns of participation. A constructivist approach requires a close relationship between researchers and participants to elicit from students their own stories told in their own words (Charmaz, 2000). As the qualitative counterpart to the quantitative study examining patterns of participation (Marks & Jones, in press), the design emphasized the construction of an emic understanding of this phenomenon and data generated from the words and perspectives of the students to tell their stories with precision and appropriate depth. All decisions regarding methods for this study were anchored in a constructivist approach to the design (Charmaz, 2000; Crotty, 1998).

### *Procedures*

*Sampling.* Purposeful sampling (Patton, 1990), or sampling for information-rich cases, was used in this study for both the identification of college and university participants and then for the selection of student participants at each institution. Letters of invitation were sent to all Directors of Community Service programs at Ohio Campus Compact schools ($n$ = 39). The Ohio Campus Compact is a consortium of Ohio colleges and universities established to support the development of social responsibility and citizenship initiatives on member campuses. We bounded the sample by Ohio Campus Compact institutions because these schools represented a diverse array of institutions and presumably, by virtue of their membership in Ohio Campus Compact, a stated commitment to providing opportunities for public and community service to students. Directors were informed about the purpose of the study and asked to serve as gatekeepers by nominating four students for participation. We also asked directors to send us materials about their campus that provided data about community service programs and campus culture. Eleven directors responded that they were interested in participating.

Because of our interest in information-rich cases (Patton, 1990) we narrowed the group of participating institutions to six campuses. Criteria for sampling included institutional diversity (i.e., size, classification, rural/urban, commuter/residential), variety in reporting line and institutional structure for community service programs, and variety in student composition. These criteria led to a final sample of six institutions—3 urban, 3 rural; 3 large (over 15,000 students), 3 small (under 3,000 students); 3 private, 3 public; 2 liberal arts, 1 Catholic, 2 research, and 1 state university.

The next stage of sampling involved the recommendation by the directors at each of the six participating institutions for student participants in the study. Each director was asked to nominate four students, all of whom had participated in community service in high school, two of the four who had continued their involvement in college, and two who had discontinued service in college. For the purposes of this study, we broadly defined community service as any form of service (curricular or co-curricular) performed in an off-campus community context and for which payment was not received. Additional criteria for participant selection included year in school and a demographic profile that mirrored the general student population at that institution. This strategy resulted in a sample of 12 students participating in community service in college and 12 who had discontinued their high-school participation in college; 9 males and 15 females; ranging in age from 18–25 years and over 50% of junior or senior class status; 17 white, 5 African American, 1 Asian Indian, and 1 Philippino American; and a diverse array of academic majors including English, history, political science, biology, art, and physical therapy. Thus, the total sample consisted of 24 students (4 from each of 6 participating institutions) who agreed to participate in on-campus interviews for the study (see Appendix for complete list of participants). Students were contacted by letter with a formal invitation to participate, information about the nature of the study, and a request for scheduling an on-campus interview. Follow-up email messages facilitated the communication and scheduling process.

*In-depth interviews.* The primary strategy for data collection was in-depth, semistructured interviewing (Patton, 1990) on the campuses of each student. The interview protocol was developed and piloted with undergraduate students at the home institution of the researchers. Adjustments to the nature and order of questions were made based upon the piloting of the interview protocol. Questions focused on the nature of community service involvement in high school and college, the reasons students attributed to their participation, and the meaning they attached to community service.

One interview with each student was conducted. The two researchers conducted all interviews. Interviews generally lasted from 45 to 90 minutes. All interviews were audiotaped and transcribed verbatim. All except three interviews were conducted on the campus of each student in a room designated by the director of community service programs. Due to scheduling or last minute conflicts, three interviews were conducted on the telephone.

*Document review and campus visits.* In addition to in-depth interviews with each of the students, we were interested in understanding the campus context in which students' decisions about community service participation were enacted (Janesick, 2000; Jones, 2002). To this end, we examined materials sent to us from the directors of community service programs. These included campus admissions materials, office brochures and organizational charts, student newspapers, and strategic planning documents. We also viewed web sites for each of the institutions. We were interested in how institutional commitment and support for community service is evidenced in campus publications as well as assessing institutional culture and campus norms for service. During our campus visits, we toured the campus, visited the community service programs offices, and spent time talking with each director. We used the insights gleaned from reviewing these materials and touring campuses as a context for understanding students' experiences. Both researchers made notes in an analytic journal to record observations and insights from these activities.

*Trustworthiness.* Several strategies were utilized to assure the trustworthiness of findings. Both researchers independently read and coded all the data. Meetings to compare notes and discuss the results of analysis followed this process. A detailed narrative serving as a summary of findings was sent to all participants for member checking (Lincoln & Guba, 1985). And last, an inquiry auditor (Lincoln & Guba, 1985) read all the transcripts and reviewed the analytic and interpretive work of the researchers.

### *Data Analysis*

All data were analyzed using the constant comparative method characteristic of grounded theory methodology (Glaser & Strauss, 1967; Strauss & Corbin, 1990). As a constructivist study, the analytic process moved from more concrete codes to abstract themes and categories that are reflective of the meaning participants attach to their experiences, rather than the generation of objective truth (Charmaz, 2000). This required data analysis to proceed not as a linear process of concrete to abstract, but in a more cyclical manner by constantly returning to the data with new questions and ideas until a narrative emerged that described the essence of experience for study participants. In constructivist ground theory, this essence of experience is described as the core story (Charmaz, 2000; Strauss & Corbin, 1990).

## *Findings*

### *Core Story: External and Internal Influences on Participation and Commitment*

Because all the participants in this study were involved in community service in high school, the core story describes a process of meaning-making about the role of service in their lives and the relationship between participation and commitment. For those for whom community service was consistent, the process mirrored a movement away from external influences on participation and an emerging commitment. For those participants who discontinued their community service once in college, service was motivated largely by external factors, requiring little investment of them, making fewer claims on their sense of self, and resulting in limited commitment. Participant understandings of service then were mediated by whether or not service was more internally or externally motivated and, hence, how service was integrated with an evolving sense of self.

High-school involvement was almost always motivated by external factors, such as the influence of family and friends or a school requirement. Participants, even when it was required, enjoyed community service because it made them feel good about themselves and enabled them to spend time with their friends and family. With the exception of those whose service was connected to their churches or religious beliefs, there was little evidence that participants thought much about why they were engaged in service. This was particularly true when service was required rather than voluntary.

As participants made the transition to college, new environments, the opportunity to make decisions on their own, and the identity development process complicated the process of meaning-making. For some participants, community service was relegated to a lower priority as they negotiated a new collegiate environment. For others, now out from under the influence of parents, teachers, or a requirement, interests took them in different directions, among which community service was not included. And for a few others, community service was evolving into an important part of their identities. They had developed a passion for a social issue, a more active stance toward social change, and an emerging commitment to social responsibility. Regardless of the path taken in terms of continued participation in community service, all participants were engaged in a process of meaning-making that involved reflecting on their identities and their place in the world. For some, community service contributed to this process, and for others it did not. The themes that form the core story and findings are elucidated below.

### *Influences in the High School Years: Supports and Barriers to Participation*

*Family role models.* Family members' encouragement heavily influenced participation in community service in high school. Active parents, aunts, and grandparents who modeled the importance of involvement in the community introduced community service to participants. David reported, “My parents got us involved, . . . and that gave me the role model to get involved.” Emily spoke of her aunt with whom she spent a lot of time growing up and “she would always try to involve me in everything she did. She was big on volunteering.” Robert learned early on from his mother about caring for others. Growing up in “the projects,” he watched his mother give their food to neighbors who had less than they did. Robert noted, “My mom, if it were not for her community involvement, I would not be as involved as I am. She is a strong advocate for the poor. She fights for the poor . . . and pushed me to get involved.” Several participants grew up on farms and learned an ethos of service that required everyone to do their part in completing chores and taking care of families and neighbors. However, despite encouragement and role modeling from family members, many of these participants did not always think about what they were doing as community service. Instead, it was simply “something my family does” and yet, had become what was perceived as an important “family tradition.”

*Religious foundations.* Church commitments and religious beliefs also influenced participation in high school. Several participants were active in youth ministry, leading retreats and teaching religious education classes, which they perceived as community service. Brad, commenting on his involvement in community service, articulated, “My youth ministers and people involved in church, . . . they were the ones that pushed me a lot.” Similarly, Carol noted that it was her director of religious education at her church who “really is the one who got me coming to things and got me involved and really active.” Rob recalled growing up in a family guided by a set of religious principles that “taught that the ideal is that it is better to give to those less fortunate. So even going Sunday and putting my twenty-five cents into the jar every time, that was probably a beginning.”

*Socializing with peers.* Friends played a big role in high-school participation in service. Essentially, if friends were involved in service, then these students were more likely to participate. Service became the vehicle for fun and spending time with friends. Friends also influenced involvement in school clubs and organizations that required service. While involvement in school clubs or organizations like National Honor Society or Key Club introduced participants to service, that was not usually the primary motivation for joining the organization—it was more about being around friends and the social benefits of meeting new people. Ann emphasized that she only participated in service if she was part of a group in which “we had to fulfill requirements that way.”

*Required service: Mixed blessing.* Many participants noted that required service in high school produced increased numbers of students involved in community service, presumably accomplishing some good. However, almost without exception, students noted that required service quickly took on a negative connotation for themselves as well as their friends. They were clear: as soon as they met the requirement, they were moving on to other activities. Participants' comments on required service ran along two paths. The first was, if community service is required, it is not community service. And the second was, because service was required, they only thought about meeting the requirement and not why they were performing service.

Michael articulated, "If someone's telling you that you have to go do community service, . . . I would tend not to see that as community service." In his view the "desire has to come from within." Another participant likened required community service to a "sentence" which carried a terrific negative stigma. Alternatively, Emily noted that she and her friends enjoyed their community service "because we weren't required to do it." Speaking about her high-school requirement, R. noted "A lot of people either found it difficult or, not exactly bad to do, but more difficult to find the time to do it." When service was required, several students emphasized, "once the requirement is met, the service will end."

A prevalent theme with regard to required service was that because the emphasis was on the requirement, students never had to think about what they were doing. Grace viewed her required service as "just another homework assignment." As a result of the requirement, she was "turned off to participating in college." Likewise, R. articulated, "I never really thought about 'what does [service] do for me?' other than the fact that it was on the resume, but because it was also a requirement, I never had to think 'what if we didn't have this requirement?' " Destiny participated in high school because she was told to, but suggested, "If I knew what I was doing, what the reason was, and I knew the person or the organization it was helping, . . . maybe that would make me feel better about doing it" [community service].

*High-school environments.* Community service was highly visible at Catholic high schools. Carol proudly recited her Catholic high-school motto "Omnibus Caritas"—in all things charity. Brad knew that the priests at his school were interested in graduating strong moral leaders and therefore exposed students to social issues through community service. Many schools took an approach to community service through blood drive or food can competitions. By and large, however, students commented that at best, community service was one of many activities that were important at their high school (sports often being the most important) and, more often, was not encouraged or visible in the classroom or as an extracurricular activity. A few students commented positively on teachers who took the time to explain the importance of community service, inspired students to get involved, and connected service to larger social issues. For example, Kathy noted, "In my classes, I had really great teachers, really wonderful enlightened people who challenged me, 'Why do you think that's wrong? Go out and find out.' "

Several participants talked about engaging in service, whether required or not, because teachers told them it would build their resumes and help them with their applications for scholarships and college. They were also aware that engaging in community service increased popularity among their peers and garnered them recognition and notoriety from important school and city officials. Erica unabashedly emphasized that her high-school community service included working on the mayoral campaign because "I just wanted to know the Mayor. I wanted to be cool with the Mayor!"

### *High School Constructions of Self and Service*

*External motivations.* These factors identified (i.e., family and friends, required service, the high-school environment) influenced students' constructions of self and service in their high-school years. For most of the participants, they were involved in community service in high school because it was fun. In addition, participants commented on the good feeling they got about themselves through helping others—several referred to service as a "big ego boost." Bob referred to this as the "warm, gushy feeling" he received when engaged in service. Participants felt good about what they were accomplishing through service as well as enjoyed the appreciation and recognition they received for their involvement. As Carol indicated:

> We did it because we felt good after we did it, and we helped so many people; . . . just to see the responses from people and how grateful and how it really affected them even it if was something small, . . . just to see appreciation and gratitude and the smiles on their faces and the thanks in their eyes. That was one of the things that motivated me to keep doing it [community service].

For the most part, reasons for involvement in service were more external than internal. Service existed outside the individual and was motivated more by external factors such as friends, family, requirements, and recognition. Service was understood by many as "anything done for which you are not paid." Most students recognized that service also involved helping others out, but thought of it more as a nice thing to do, rather than as contributing to larger societal concerns.

*Internal motivations.* For those participants who were more consistently involved in direct service in high school and attended a high school that supported active involvement in community service, service was an eye-opening experience that caused reflection on their own backgrounds, responsibilities, and potential for improving life for others. As Carol recalled, "I think it [service] made me grow as a person and I know it really changed me. . . . It exposed me to other people and populations, other socioeconomic statuses, and it really opened my eyes and broadened my scope." Similarly, Casey reflected, "I think basically it [service] is good, makes me feel good, and I think I had a sense that it helped people. I don't know if I had a sense of how much it helped people yet; . . . I think in high school I just kind of sensed that it was a good thing to do. It was right, . . . and it helped me grow as a person." Kathy left high school with the idea that she was committed to community activism rather than community service, which she perceived as "too rah rah. . . . I don't think community service is the way to solve everything. I think community activism is. If you change the problems at the root, then you don't have to serve." As these students approached college they brought with them some initial understandings of personal responsibility for social problems, interest in working toward a greater good beyond individual interest, and a growing commitment to the role of community service in their lives.

### *Influences in College: Supports and Barriers to Participation*

*Transition to college and a new community.* The transition from high school to college was a big one for nearly all the participants and, in many cases, of a magnitude for which they were unprepared. Those involved in community service, as well as those not involved, commented on this transition in terms of learning to manage their time, establish priorities, and find their way around a new environment. Several commented on the rigor of the academic program compared to high school and the need to actually study in college. Ann commented, "It is hard to organize your time because you have so much more work." Similarly, Mary noted, "Your whole first year all you are doing is learning how to set your priorities." Nearly every student not currently involved in community service in college mentioned time and setting priorities as a deterrent to their continued participation in service. In addition, every participant, with the exception of two, was balancing significant employment obligations, with more than half working over 11 hours a week.

An awareness of the need to manage the transition to college caused some participants to put community service "on hold" until they figured out college life. Of the twelve students currently not participating in community service in college, all articulated that involvement in community service was not possible in the earlier years of their college experience. However, those who had been consistently involved in high school spoke positively about resuming their community service participation in college once they got settled. Dwight referred to this as "getting back into the community service loop" because he had "gotten out of the habit" in college.

Part of the transition for students involved getting to know a new community—both the college environment as well as the neighborhoods in which community service typically took place. Several participants at larger schools talked about the "bureaucracy" of big institutions and trying to navigate these places—both in terms of survival as well as learning where community service opportunities might be found. R. emphasized: "My first quarter, I didn't do any service. It was me versus the school!" Similarly, Destiny emphasized that on her mind were questions like, "How am I going to adjust?. . . I had too many other worries to think about community service, . . . making sure I was ready, because I couldn't turn around and go home." Victoria noted, "At such a big campus, bureaucracy is always there."

Participants also commented on the difficulty of getting around a new town or city and figuring out where community service opportunities might be found. In high school, because she knew the area, Emily would "just get in my car and go" to community service agencies. But in college she indicated she couldn't easily volunteer because she didn't "know the places around here very well." Students attending college in urban areas also discussed fear in venturing out into unfamiliar neighborhoods. April mentioned that she was "scared" to go into the city. Brad mentioned this also, but then went on to say that his unfamiliarity was perhaps a positive thing, because he did not carry the stereotypes others had about going into "bad neighborhoods in the city."

*Role of peers in participation.* As in high school, friends and peers were mentioned by many participants as influencing participation. However, this was more prevalent from those not participating in college than from those who were involved. Those not currently involved in service speculated that had their friends been involved in community service, then the likelihood of their involvement would have increased. In addition, encouragement from other students makes a difference; as Rob mentioned, "I don't know a whole lot of the people who are involved, especially the upperclassmen. And I think if I knew some of them, saw them on a regular basis, and they said, 'hey, you should come to this,' kind of reinforcing that it was available, that would help." Those students who were consistently involved in college talked about volunteering with friends as fun, but also that this peer group shared values and social concerns.

*Institutional influences on participation.* The visibility and accessibility of community service programs influenced participation. Students at the smaller institutions were much more aware of community service opportunities than those at large institutions. At the liberal arts institutions, students spoke about the wide range of activities in which involvement was possible. In addition, these students talked about "all-campus" events with a community service or social issue focus. So while not all students chose to take advantage of community service opportunities, these students knew they were available and were also more likely to be involved in other activities. Many of the students attending smaller institutions commented that at their college, "it is easy to get involved." This was not the case for students from large universities.

Students from larger institutions consistently mentioned that it was hard to find the community service opportunities on campus. Several students noted that they knew there was a great need in the community for student volunteers, but that they did not observe strong support on campus for such efforts. Casey commented "I think there are a lot of opportunities in the community, but I don't see really strong support for it here." Likewise, Mark reflected, "Well, it is such a big university. I think there are a lot of people who do put a lot of emphasis on community service, but I don't know if the University as one voice has been like, 'service is important.' " Fraternities and sororities provided opportunities for sporadic involvement for some students at both small and large institutions, although service was not the primary reason for joining and was often constructed as a requirement of membership.

Community service received some visibility at institutions where scholarships are given for community service work. Students all commented on the irony of "providing payment for service" and their perception that scholarship recipients were only performing service to maintain their scholarships rather than for the good their volunteering might do. Michael commented, "They'll do their 30 hours and won't serve again." The paradox of this kind of institutional "support" for community service is that, according to these participants, it produces negative outcomes. R. was a recipient of such a scholarship and acknowledged, "I honestly believe that the scholarship, for a lot of college students, is a struggle with mandatory service. It is hard to see the focus of the service when they tack a number to it, rather than linking it to quality for the server or the served."

*Programmatic support for participation.* Specific programs and activities were mentioned by students as having a big influence on their involvement in community service. Several students mentioned activities fairs at the beginning of the school year as a time when community service opportunities were visible. In most cases, students recalled picking up printed materials but usually did not follow up on opportunities. They indicated that had there been some follow-up and help in getting them directly involved, they might have been more likely to get involved. Students from several campuses talked about orientation programs that included community service components. One institution took a select group of students to Washington, D.C., for several days of community service. This program included both direct service as well as visits to Capitol Hill to learn about public policy implications. This made a big impact on students' thinking about service in general as well as their own involvement. Kathy referred to her trip to DC as "the most amazing experience ever, . . . it just totally opened my eyes and made me reaffirm how I want to go about living my life and how I want to continue community activism for as long as I live."

Alternative Spring Break programs were also mentioned as "life changing" learning opportunities. Michael described his week in Appalachia as "the most incredible week of my life." Carol spoke of a broadened perspective from her spring break trip to New York City where she received "a taste of what it was like to work with the homeless, what it was like to be immersed in these situations and just kind of help out." Both of these programs included small groups of students who received training to prepare them for their experiences and on-site reflection with the faculty and staff who traveled with the students. These were the most structured community service opportunities we heard about from students and also, not coincidently, the experiences about which the students spoke with the greatest enthusiasm and insight in relation to their interest in and commitment to community service.

### *College Constructions of Self and Service*

*External influences.* Only three students made clear that they had absolutely no interest in community service in college and their high-school participation was entirely externally driven. They had participated in high school as a resume builder for college applications and because it was required. They indicated that they had reaped the intended benefits of service in high school and saw no need to get involved in college. Erica conveyed this poignantly in her discussion of community service connected to college scholarship applications, "I tried to get involved in everything so I could reap the benefits. . . . I'm now going to college, . . . so I really don't see it as beneficial anymore because I already got what I was striving for."

Further, those college students who were no longer involved in community service described themselves as the "typical apathetic, lazy, and uncaring college student." Jen boldly declared, "Hey, I am lazy. I like to sit around. . . . I think students in general are lazy; . . . I mean, in concept, the whole community service thing is a nice thing, but I am too lazy to get out and do it." Dwight commented, "I am probably at the point where I just want to relax and not do nearly as much as I did during high school." Christy commented more generally that "some kids here, this is typical wherever you are, they haven't grown up enough not to be self-centered, they're just not willing to go out of their way to help somebody else. It's easier to just sit at home and watch T.V. and call your friends." Thus, for these students, community service has no relationship to how they see themselves, nor did their high-school participation, motivated by external factors, produce any fertile ground for commitments to grow.

*Internal influences.* Those who continued their community service involvement in college offered reasons for continuing with community service that reflected a movement in the direction of greater focus on others, rather than solely on the benefit it was bringing to them. Brad conveyed that in the past he had been "blinded by being the center of attention, more so than how I was actually helping people." Laura explained:

> Right now, my main reason for doing community service is so I can give back to people who may be less fortunate than I am and to show them that there are "normal" people out in the world who do care. . . . I have learned that wherever you go, there will always be people facing the same problems, and these people are just like myself and others, but they have bigger obstacles to overcome on their journey through life.

Several participants connected to their own past personal experiences as recipients of services or feeling marginalized and hence felt a strong sense of responsibility to give back to the community. Rachel emphasized several times in our conversation, "I remember what it felt like when I needed help." Bob recalled, "My mother was 18 when she had me, . . . a young mother and two kids, . . . no where to go, . . . going from welfare to working, so I just think helping people was a good feeling because people did that for me."

Several students directly connected service with self. David commented on the reciprocal nature of service and self in observing, "whatever I do gets reflected back really quickly." And Victoria reflected, "I like being known for what I am passionate about." Casey commented on the potential of community service, "It's a way to grow and learn yourself . . . and understand what other people go through. I think it is very important to put yourself in other people's shoes and see from their perspective. People would be much better to one another if they did that, and I think community service helps." However, as R. pointed out, in order for service to be connected with self, "you have to get yourself immersed in it." Mary reiterated, "You only know it is important if you are a part of it." Those who continued their service began to see who they were (and who they wanted to become) and community service as connected and interrelated.

*Evolving understanding of service.* A couple of students talked about the importance of linking community service to social change or community activism. Because voting is frequently identified as a measure of civic engagement, we asked students whether or not they had voted in the recent election. Of note, 75% of those currently participating in community service voted, while fewer than half of those not participating had voted. Politically active as president of the college Democrats on campus, Robert emphasized that through his work in the community and his life experiences, he learned the importance of taking a stand and speaking up. He declared, "I have a passion for individual rights, whether it is civil rights, gay rights, student rights. I believe in social change because without those elements, nothing can change. You must be out there in the forefront to effect change. It begins with you and starts with you." These participants in college were developing commitments to social issues through connecting a sense of self with their involvement in community service.

## *Discussion*

Based upon our conversations with all of the participants, patterns of participation in community service are mediated by involvement influences and motivations in high school, the role of peers, and by how closely community service is connected to an emerging sense of self. For the most part, patterns of participation begun in high school carried over into college. For those who were involved more sporadically in high school, primarily for external reasons such as meeting a requirement, service involvement was discontinued in college. For those for whom service was more consistent in high school and motivated by family and school encouragement, service took on more personal motivations and altruistic interests, and thus the likelihood was greater that involvement would be continued in college. Further, early personal experiences that cultivated empathy also influenced continued participation in community service and an ethos of caring for others. In addition, if teachers or family members took the time to explain the reasons for community service or introduced the larger social context in which service is provided, then service took on a more meaningful role and encouraged a developing commitment in college.

### *The Importance of Service as Personally Meaningful*

This ingredient, service as personally meaningful, seemed to be the foundation of the participation and commitment process from high school to college. Those who continued their service after high school were those who were also involved in voluntary service, were more likely to have been involved in direct service in the community, and who had teachers who helped explain why community service was important. Continued involvement in community service provided a unique opportunity to reflect on one's identity and what is important in one's life. Beginning in high school and then further developed in college, participation in service introduced participants to others who might or might not share the same life experiences and to a diverse array of complex social issues. Continued community service provided the impetus for students to think through their responsibility for making life better for others whose lives had been impacted by conditions such as poverty, sickness, and unemployment. Service influenced how they see the world and their place in it. It brought clarity about the self that perhaps few other life experiences had afforded, especially in the context of education. Initial commitments to integrating service into a sense of self were made. Many of the participants were quite passionate about their community service work and articulated a commitment to continued action.

For community service to be meaningful, a relationship between the service and evolving constructions of self was present. The research in this area suggests patterns in identity development that revolve around the processes of individuation and differentiation, separation and connection, or agency and communion (Baxter Magolda, 2000; Belenky, Clinchy, Goldberger, & Tarule, 1986; Erikson, 1968; Perry, 1970). Our research suggests that patterns of participation in community service may mirror patterns of identity development in moving from external definitions to an internal authority. Baxter Magolda (2000) speculated, "Connection to others in service contexts can create dissonance with perspectives adopted from external sources" and "offers the opportunity to acquire an internal sense of self and to struggle with the relationship of agency and communion" (p. 154). Our findings support the idea that how individuals integrate service with self and make sense of their community service experiences may be influenced by where they are in the identity development and self-authorship process. These findings are also consistent with the research of Rhoads (1997), who explored students' evolving sense of self through community service work.

### *Intersection of Identity Dimensions and Community Service Participation*

The results of this study also suggest the significance of looking at the intersections of identity dimensions such as race, gender, social class, and religion when exploring student constructions of community service and their experiences with service. For example, several of the African American students, although classified as non-participants in community service, were really quite involved in their communities. However, giving back to the community is so much a part of how they see themselves and their cultural heritage that it was impossible for them to pull out that one aspect of who they are and hold it up for scrutiny. Several of the men in the study engaged in service through what they described as more competitive than relational ways. They mentioned blood drive and food can competitions or earning points for their fraternities through service involvement. However, with increased involvement in service, a voice of care entered into their dialogue, reflecting an interest in learning how to care with others (Noddings, 1984; Rhoads, 1997). Students with strong religious beliefs or faith traditions engaged more readily in community service because they perceived service as the morally right thing to do. While community service on college campuses is frequently the activity of white, middle-class students (O'Grady, 2000), this is not always the case—and will become less so if community service is encouraged and supported for a greater diversity of students. Our research suggests that how students understand, construct, and engage in community service is influenced by the socially constructed identities they bring to the experience.

A number of the community service participants spoke persuasively and eloquently about their personal connections to service because of their own experiences as recipients of service or experiences with being marginalized as, for example, "the only Asian American in my school." This is consistent with the findings of a study on the factors that influence individuals to lead lives of commitment to the common good (Parks Daloz, Keen, Keen, & Daloz Parks, 1996). While over half of those studied by Parks Daloz et al. reported experiencing marginality, these individuals were also "able to transform the pain of their marginality into a deepened capacity for compassion and a strength of identity and purpose" (Parks Daloz et al., p. 73). In our study, community service both enabled this transformation among participants who had experienced marginality, as well as created the conditions for others to experience marginality, perhaps for the first time, and thus, cultivate empathy and compassion for those whose life circumstances they did not share.

### *Patterns of Participation: The Relationship Between High School and College*

The connections between high-school and college participation in community service uncovered in this study are consistent with previous research (Astin, Sax, & Avalos, 1999; Berger & Milem, 2002; Marks & Jones, in press). In other words, those who are consistently involved in high school will likely continue participation in college, with a deepening commitment to service and greater understanding of the motivations beyond themselves for engaging in service. High-school experiences with community service that resulted in continued participation were most often voluntary, encouraged by family or friends, and made meaningful by teachers or others who helped explain why community service was important.

Conversely, those who are sporadically involved in high school, motivated by external factors, are unlikely to sustain participation in college, given their perceptions of required service, the demands of adjusting to college, and the absence of peer encouragement. Required service in high school led many participants to drop service as soon as it was no longer required. For these students, service was constructed as an obligation, with little thought given to the meaning of the service itself. During the high-school years, this negative perception of service was somewhat attenuated by viewing participation as an opportunity to spend time with friends.

### *Implications*

The results of this study provide policy implications for requiring community service. The participants in this study were adamant about the negative, albeit unintended, consequences of requiring community service. Policies requiring service, crafted with the best of intentions, became a deterrent to continued involvement and any development of commitment to civic and social responsibility. Requiring service led to a singular focus on simply meeting the requirement with little consideration of the purpose of the service. Further, "community" service constituted everything from sweeping the floors of the high school to raking a neighbor's yard—not typically the work that produces the intended benefits of social and civic responsibility. This suggests that if the quality of required service were high (i.e., students performing meaningful service), the negative outcomes may be reduced. However, as typically constructed, required service in high school led many of the participants to drop community service as soon as it was no longer required. To increase the likelihood of continued service after required high-school service, students' involvement in voluntary and direct service could be encouraged, with opportunities provided for understanding why community service is important.

The results also suggest implications for practice. If colleges and universities are interested in accomplishing the positive outcomes associated with community service, then active, intentional steps must be taken. College faculty and administrators can enhance the likelihood of community service involvement by making opportunities visible and easily accessible as well as helping students negotiate demands on time. If colleges and universities are interested in engaging greater numbers of students in meaningful community service, attention must be focused not only on those who will most likely continue, but also on those most likely to "get out of the habit" when transitioning from high school to college. Those students who have been consistent participants in service in high school will most likely seek out these opportunities at college. However, more sporadic participators, most often for externally motivated reasons, will need extra encouragement from peers, administrators, and faculty to make initial connections for involvement.

Very few participants talked about either service-learning courses or structured reflection opportunities. It seemed clear that when someone helped students make sense of why they were doing what they were doing, it was more meaningful to them and their commitments deepened. Students who had participated in more intense community service activities (i.e., Alternative Spring Break programs) were much more articulate about the meaning and significance of their work. This is consistent with the research of Eyler and Giles (1999), who found that the quality of the service work makes a difference to producing positive outcomes. Community service programs then would be well served to design and implement activities that are consistent with the research on the principles of high quality service (Eyler & Giles, 1999).

Further research on patterns of participation would continue to add depth and breadth to an understanding of the connections between community service participation, commitment, and identity development. Continued study of the relationship between community service and self-authorship is needed. The results of this study suggest the importance of research exploring the intersections between dimensions such as race, social class, gender, and religion on the constructions of self and service. In addition, this study only touched upon the influence of campus cultures and normative environments in relation to community service participation. While students commented on their perceptions of the college environment, more detailed assessments of campus culture would create a picture of those institutional environments that promote community service involvement. Further, additional research examining the relationship between student age and the developmental influences on participation and commitment is warranted. Because of the variability in age of participants in this study, it was inappropriate to speculate on a possible relationship.

Results released from the 2001 Freshmen Survey indicate that 82.6% of first-year students reported performing volunteer work in their senior year of high school. However, only 24% indicated that chances are very good that they will participate in community service in college (Bartlett, 2002). The results of our research provide an explanation for this apparent discontinuity in patterns of participation. If the majority of high-school students are involved in community service because it is required, in a sporadic fashion, and with limited explanations for the purposes of their participation, then most students will discontinue their community service in college, because it is not perceived as important or personally meaningful. Participation in community service will more likely grow into commitment if it is direct, of high quality, and integrated into an evolving sense of self. With encouragement from friends and a nudge from university faculty and student affairs educators, the possibilities of developing internal motivations for service and for connecting service to students' sense of self could be realized. More intentional efforts, in both high school and college, to engage students in meaningful community service will not only increase the likelihood of students sustaining the participation begun in high school, but also developing internal motivations to serve and then to develop the commitment required for active citizenship. In fact, several students articulated that society's success depended upon students' abilities to understand their commitments to the communities in which they live. Kathy made sense of her community service experiences this way: "I think I have the means, the capability, and the intelligence to affect social change, so I have to do it; . . . there's no way I can just sit and watch things happen."

APPENDIX

Patterns of Commitment in Community Service

| Name | HS Type | Service in HS | College Type | Service in College | Age | Vote? |
|---|---|---|---|---|---|---|
| | | Participants in College* | | | | |
| 1. Brad | Catholic | Sporadic** | Catholic | Sporadic | 19 | No |
| 2. Laura | Public | Consistent | Catholic | Consistent | 20 | Yes |
| 3. Bob | Public | Consistent | Liberal Arts | Consistent | 22 | Yes |
| 4. Mary | Catholic | Consistent-required & vol. | Liberal Arts | Sporadic | 19 | Yes |
| 5. Robert | Public | Consistent | State | Consistent | 25 | Yes |
| 6. Carol | Catholic | Consistent | State | Consistent | 22 | Yes |
| 7. Michael | Public | Sporadic | Research | Consistent | 23 | Yes |
| 8. R. | Catholic | Consistent-required & vol. | Research | Consistent | 19 | No |
| 9. Casey | Public | Sporadic | Research | Sporadic | 22 | Yes |
| 10. Victoria | Catholic | Consistent | Research | Consistent | 21 | No |
| 11. David | Public | Consistent | Liberal Arts | Consistent | 20 | Yes |
| 12. Kathy | Public | Sporadic-required & vol. | Liberal Arts | Consistent | 18 | Yes |
| | | Non-Participants in College* | | | | |
| 1. April | Public | Consistent | Catholic | — | 19 | Yes |
| 2. Grace | Public | Consistent-required | Catholic | — | 18 | No |
| 3. Ann | Public | Sporadic-required | Liberal Arts | — | 19 | Yes |
| 4. Dwight | Public | Sporadic | Liberal Arts | — | ?? | ?? |
| 5. Erica | Public | Consistent | State | — | 23 | Yes |
| 6. Christy | Public | Sporadic | State | — | 20 | No |
| 7. Destiny | Catholic | Consistent-required & vol. | Research | — | 20 | No |
| 8. Rachel | Public | Consistent | Research | — | 19 | No |
| 9. Jen | Public | Sporadic | Research | — | 19 | No |
| 10. Mark | Private-Christian | Sporadic | Research | — | 24 | Yes |
| 11. Rob | Public | Consistent | Liberal Arts | — | 19 | Yes |
| 12. Emily | Public | Sporadic | Liberal Arts | — | 21 | No |

*Names are pseudonyms and/or chosen by participants.

**Sporadic and consistent were identified by the participants as the terms that best describe their participation in high school and college.

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# The Impact of Intercollegiate Athletics on Graduation Rates Among Major NCAA Division I Universities

## Implications for College Persistence Theory and Practice

### *Introduction*

One of the most pressing issues facing American universities is the number of students who fail to graduate. Low graduation rates cost universities scarce resources; weaken the ability to meet educational objectives; and are perceived to reflect the university's ability to meet the educational, social, and emotional needs of students. Moreover, retention and graduation rates are a major component of national ranking schemes, such as the US News *Annual Ranking of US Colleges and Universities*. Although the use of retention and graduation rates as measures of performance indicators have been criticized (Astin, 1993; Ronco, 1994), many state legislatures and boards of higher education nevertheless link freshman retention and graduation rates to university budgets as a component of performance-based funding (Carnevale, Johnson, & Edwards, 1998). In addition, Federal Law requires colleges and universities to disclose their graduation rates along with campus crime rates as part of the Student Right to Know Act (Federal Register, December 1, 1995).

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Crosscutting the concern about retention and graduation rates is the long-standing tension between the emphasis placed on academic performance and intercollegiate athletic program success. A voluminous body of research exists that examines the relationship between postsecondary graduation and intercollegiate athletics. This research, however, has almost exclusively focused on how the graduation rate of student athletes is affected by their participation in intercollegiate athletic programs (American College Testing Service, 1984; DeBrock, Hendricks, & Koenker, 1996; Pascarella, Bohr, & Terenzini, 1995). In fact, we are aware of only one study (Tucker, 1992) that specifically examines how successful intercollegiate athletic programs, in general, and national prominence in sports, specifically, affect *institutional* retention and graduation rates.

Given the interest in the relationship between retention and graduation and the vast literature addressing intercollegiate athletics and academic performance, it is surprising that the combination of the two has produced so little empirical attention. In this article, in order to begin addressing this gap in the literature, we explore the relationship between intercollegiate athletic program success and theories of student persistence by examining the impact that athletic programs have on *institutional* graduation rates.

### *Theoretical Perspectives on Student Persistence*

Research on retention and graduate rates often focuses on the overall issue of student persistence, in other words, the degree to which an individual is repetitively and/or continuously enrolled at an educational organization in order to achieve his or her goal of eventual graduation. Research on student persistence generally adopts one of several theoretic perspectives; economic, interactional, organizational, psychological, and societal (Tinto, 1986). Thus far, the interactionist model developed by Tinto (1975, 1986), which is based on the theoretic perspective of Emile Durkheim, has generated the largest amount of empirical attention and empirical assessment (Cabrera, Castaneda, Nora, & Hengster, 1992; Munro, 1981; Pascarella & Chapman, 1983; Pascarella & Terenzini, 1980; Terenzini, Pascarella, Theophilides, & Lorang, 1985).

Tinto's model (1975; 1986) first assumes that incoming students possess a set of individual traits (e.g. age, sex, race/ethnicity, high school achievement history, encouragement and socioeconomic status of their parents) that influence their overall commitment to the institution of higher education, as well as their specific commitment to attain a college degree. Second, the individual traits of students, combined with their commitment to higher education appear to influence their academic and social integration into a specific educational organization (e.g., community college, university). Third, Tinto's interactionist model posits that the incoming student's overall level of academic and social integration strongly influences his or her persistence to graduation, or in contrast, the choice to drop out of school altogether.

Nora and Cabrera (1993) provide a succinct definition of Academic and Social Integration, the two multi-dimensional concepts that are among the most commonly accepted, and empirically tested components of Tinto's (1986) interactional model. Academic Integration is defined as the development of a strong affiliation with the college academic environment both in the classroom and outside of class. Academic Integration might be demonstrated through learning-centered interaction with faculty and academic staff, or involvement in peer tutoring or study groups. Nora defines Social Integration as the development of a strong affiliation with a college's social milieu, both in the classroom and outside of class. Examples of Social Integration might include ongoing interaction with peer group members, informal contact with faculty or involvement in student organizations (Nora, 1993, p. 235).

It is well documented that as academic and social student integration increases, overall persistence increases as well (Pascarella & Terenzini, 1983; Tinto, 1997). Further, academic and social involvement affect each other in an interdependent manner (Pascarella, Terenzini, & Wolfle, 1986). Thus, Tinto (1997) finds that academic involvement leads to greater social involvement. However, the relationship between academic and social integration appears to be inverse. Academic integration appears to have the strongest positive influence on persistence when social integration is relatively low. Then, counter-intuitively, as social integration increases, the positive influence of academic integration appears to somewhat diminish.

Research attempting to untangle the inverse relationship between academic and social integration on persistence using individual attributes (e.g., age, sex, race/ethnicity) reveals differences in experience patterns, but the patterns are not clearly differentiated and result in only modest increases in the explained variance (Pascarella & Terenzini, 1983). The attributes of educational institutions appear to mediate the influence of student involvement on persistence as well (Braxton, Vesper, & Hossler, 1995; Williamson & Creamer, 1988). Overall, social involvement has a smaller effect, and academic involvement has a greater effect at two-year institutions (Braxton et al., 1995). Tinto (1997) suggests that the differential influence of academic and social interaction on student involvement is the result of variation in the on-campus activity pattern of students at two-year and four-year institutions. For example, students at two-year institutions typically spend more time together in the classroom (academic interaction) and less time together outside of the classroom (social interaction) than students at four-year institutions. Tinto's speculation is consistent with research by Pascarella and Chapman (1983), who claim that the persistence of students who are commuters to (compared to residents of) educational institutions is influenced more by academic integration than social integration. They speculate that social integration may be less salient to college commuters than to students who reside on campus, although the specific mechanism that reduces the salience of social integration is, to date, unclear.

In summary, as overall academic and social student integration increases, persistence increases as well. Theoretically, student involvement inside and outside of the classroom facilitates the integration of students into the complex interdependent and overlapping academic and social spheres of educational organizations. It follows, therefore, that activities or programs that bring students together should facilitate academic and social interaction, foster a shared consensus regarding institutional goals and, thus, promote persistence. And, in fact, this is precisely the rationale used for virtually all efforts to improve rates of persistence, retention, and graduation, such as mentoring, special advising programs, and block registration. Tinto (1997) points out that academic involvement promotes social involvement, but the reverse is not necessarily true. To date, however, the nonreciprocal influence of social involvement on academic involvement is unclear. Empirically based analysis is sparse and has yielded inconsistent findings. Intercollegiate sports such as football and basketball are often viewed as catalysts for student interaction, thus facilitating social involvement and ultimately enhancing student institutional affiliation and commitment. Of course, educational organizations are not unique in this regard; communities, states, and entire nations derive identity and pride from athletics as well (For an excellent account of how high-school sports integrates a community, see Bessinger, 1991). However, theoretically, intercollegiate athletic programs, especially successful programs, should have a positive effect on the creation of social communities.[1]

Research based on a wide range of universities supports Tinto's (1997) argument that student social communities are a bridge to learning communities and that strengthened social communities enhance learning communities, which in turn promote institutional goals. Indeed, one of the benefits attributed to college sports programs is their ability to bring students together and provide them with a sense of pride and identification with the institution. Seen from this perspective, it is reasonable to hypothesize that intercollegiate athletic programs would enhance the attainment of institutional goals (acquiring knowledge, making good grades, and graduating), since university goals are embedded within the larger community structure of the university. The issue here is that sports built a sense of community among students and, perhaps to a lesser extent, faculty. Since the notion of student community is central to many theories of student performance, we hypothesize that intercollegiate sports facilitate and sustain the development of student communities. Students of "sociology of sport" note the positive functions of community involvement in sport in terms of identity, inspiration, integration, and ritual reassurance (Coakley, 1990; Eitzen and Sage, 1986; Stone, 1981). To the extent that it is meaningful to speak of a student community or a learning community, there is no reason to deny these functions for college sports.

Although we recognize the intuitive appeal of this position, we note the possibility that social involvement might compete with learning objectives, reduce the importance of the learning community, and attenuate academic performance, including graduation. Indeed, Pascarella and Chapman (1983) find that high levels of social integration have little or no impact on academic integration. Increased social integration, under certain circumstances, does not appear to strengthen the commitment to institutional norms of academic success or progress. For example, Thomas (2000, p. 609) suggests that although "moderate and supportive" social ties between students may enhance persistence, "too much connectedness can actually be a bad thing in terms of academic performance." It is not unreasonable to expect that highly integrated social communities may compete with learning communities, particularly if the nature of the social interaction is in conflict with the goals of the learning community. An obvious example would be a social community that emphasizes drinking or drug use. In this situation students are likely to have a reduced commitment to the goals of the learning community and are less likely to do as well as they would under more favorable conditions. We emphasize that we are not concerned with the argument about the relative emphasis that colleges place on athletics versus academics. Rather, our research question is narrowly focused on the relationship between organizational success in intercollegiate athletics and overall institutional graduation rates for all undergraduates.

## *Data and Method*

Academic and student-based data for this article come from the 1996–1999 editions of *US News Best Colleges in America* and the US

Department of Education's Integrated Postsecondary Educational Data System (IPEDS). In a few cases institutional data were obtained directly from the individual institutions when the items were not available from public data sources. Additional data about athletic programs are drawn from a variety of websites, including CBS Sports and Information Please. Our analysis is based on 97 of the 112 universities that compete in *both* NCAA Division IA basketball and football. Although 320 schools field Division I basketball teams, 208 do not field teams in both basketball and football and are excluded from analysis. We also exclude the Big West Conference and the Major Independents, with the exception of Notre Dame, because these universities are academically distinct due to their smaller size, limited graduate programs, and regional student composition. In addition, US military academies are also excluded.

For our analysis we select variables that, from previous studies of institutional graduation rates, are regarded as characteristics of universities that are the strongest predictors of graduation rates. Two of these variables, the percentage of admissions that are in the top 10% of the high-school class and the mean for the 25th percentile composite ACT score, reflect student ability. Numerous studies (Blanc, DeBuhr, & Martin, 1983; Caldas & Bankston, 1997; Gilmore, 1990; McGrath & Braunstein, 1997; Mortenson, 1997; Smith, 1992) have demonstrated a strong positive association between student ability, as reflected by selective admission standards, and graduation rates. The percentage of students living on campus and first-time freshmen as a percentage of total enrollment are included, since these variables reflect the potential for the development of strong social and learning communities (Christie & Dinham, 1991; McGrath & Braunstein, 1997).The remaining independent variables, the total enrollment of the university and the percentage of courses taught by teaching assistants, are measures of the complexity and diversity of the campus. We are unable to find studies showing the relationship between teaching assistants and graduation rates. Gilmore (1990, p. 97), however, reports a positive association between the use of part-time instructors and graduation rates. Descriptions of the variables, means, standard deviations, and bivariate correlations for the variables used in the analysis are shown in Tables 1 and 2. In order to examine the impact of sports programs, we create three measures of athletic prowess for football, basketball, and a weighted composite index of success in all intercollegiate sports programs for 1990–1999.[2] Our dependent variable is the average six-year graduation rate for 1997 through 1999.

TABLE 1

Variables and Descriptive Statistics

| Variable | Definition | Mean | s |
|---|---|---|---|
| Graduation Rate | Average six year graduation rate for 1996–1998 | 59.13 | 16.29 |
| Courses Taught by TAs | Percent of classes taught by teaching assistants for 1996–1998 | 7.86 | 8.55 |
| University Size | Average total Enrollment (000s) for 1996–1998 | 24.15 | 11.15 |
| Living on Campus | Percent of undergraduates living on campus 1996–1998 | 32.43 | 19.62 |
| First-Time Undergraduates | First-time freshmen as a percent of total enrolment for 1996–1998 | 17.75 | 4.80 |
| Composite 25th Percentile ACT | Average Composite ACT for the 25th percentile for 1996–1998 | 21.50 | 2.78 |
| Students in Top 10% of High School Class | Percent of entering freshmen that graduated in the top 10% of their high school class for 1996–1998 | 39.24 | 21.31 |
| Basketball Success* | Inverse of final rank for season *0.888+ number of NCAA tournament appearances *0.937 + number of NCAA regional championship appearances *0.944 | 0.00 | 1.00 |
| Football Success* | Inverse of final rank for season *0.901+ number of wins *0.880+ number of bowl appearances *0.932 | 0.00 | 1.00 |
| All Sports Success* | 0.696 *number of championships in all sports + 0.750 *Basketball Index + 0.918 *Football Index | 0.00 | 1.00 |

*Normalized with a mean of 0 and unit variance.

## *Findings*

We examine the combined effects of the independent variables on graduation rates via OLS regression. The general form of the model we use is to estimate the graduation rate ($\hat{y}$) from a vector of predictors of the form $\hat{y} = a+B_1X_1+B_2X_2+\ldots+B_KX_K$. Separate equations are used to estimate effects of basketball, football, and a weighted sport index. Model I in Table 3 shows the baseline equation containing the six independent variables and is fixed for all sports. Model II adds the effect of athletic prowess.

Model I shows that all variables are statistically significant, with the composite ACT score and percentage of students living on campus having a relatively strong positive impact on graduation rates.[3] The positive association between the 25th percentile ACT score and graduation is consistent with many previous studies (Caldas & Bankstron, 1997; Smith, 1992; McGrath & Braunstein, 1997). The percentage of students

TABLE 2

Correlations Among Variables

| Correlations* | Graduation Rate | Top 10 % | ACT 25th | % On Campus | % First-Time Freshmen | Size | Courses Taught by TAs | Basketball Index | Football Index | All Sports Index |
|---|---|---|---|---|---|---|---|---|---|---|
| Graduation Rate | 1.000 | 0.561 | 0.835 | 0.788 | 0.520 | 0.015 | 0.190 | 0.078 | 0.165 | 0.189 |
| Top 10 % | | 1.000 | 0.587 | 0.458 | 0.168 | −0.139 | −0.049 | 0.065 | 0.101 | 0.167 |
| ACT 25th | | | 1.000 | 0.736 | 0.355 | 0.035 | 0.158 | 0.203 | 0.116 | 0.222 |
| % On Campus | | | | 1.000 | 0.581 | −0.301 | −0.007 | 0.073 | −0.033 | 0.012 |
| % First-Time Freshmen | | | | | 1.000 | −0.290 | 0.046 | 0.198 | −0.049 | −0.130 |
| Size | | | | | | 1.000 | 0.215 | 0.122 | 0.275 | 0.315 |
| Courses Taught by TAs | | | | | | | 1.000 | 0.237 | 0.351 | 0.298 |
| Basketball Index | | | | | | | | 1.000 | −0.036 | 0.124 |
| Football Index | | | | | | | | | 1.000 | 0.773 |
| All Sports Index | | | | | | | | | | 1.000 |

*Correlations >± 0.169 are significant $\alpha = 0.05$

TABLE 3

Regression Coefficients for 1996 -1998 Graduation Rates

| Sport | Model I |  | Model II |  | Model III |  | Model IV |  |
|---|---|---|---|---|---|---|---|---|
|  | b | p | b | p | b | p | b | p |
| Basketball |  |  |  |  |  |  |  |  |
| Percent in Top 10 % High School | 0.128 | 0.016 | 0.129 | 0.002 | 0.120 | 0.004 | 0.124 | 0.003 |
| 25th Percentile Composite ACT | 2.113 | 0.004 | 2.453 | 0.000 | 2.502 | 0.000 | 2.446 | 0.000 |
| Percent of Students Living on Campus | 0.328 | 0.000 | 0.300 | 0.000 | 0.316 | 0.000 | 0.321 | 0.000 |
| Percent First Time Freshmen | 0.614 | 0.002 | 0.729 | 0.000 | 0.675 | 0.000 | 0.670 | 0.000 |
| Total Enrollment (in 000s) | 0.258 | 0.001 | 0.307 | 0.000 | 0.272 | 0.000 | 0.283 | 0.008 |
| Percent of Courses Taught by TAs | 0.186 | 0.041 | 0.211 | 0.015 | 0.226 | 0.008 | 0.232 | 0.007 |
| Basketball Index 1990–98 |  |  | –2.663 | 0.001 | –7.204 | 0.000 | –5.397 | 0.001 |
| Basketball by Size Interaction |  |  |  |  | 0.192 | 0.016 |  |  |
| Middle 1/3 of Enrollment by Basketball Index |  |  |  |  |  |  | 0.123 | 0.055 |
| Highest 1/3 of Enrollment by Basketball Index[a] |  |  |  |  |  |  | 0.132 | 0.020 |
| Constant | –20.546 | 0.016 | –30.382 | 0.000 | –30.474 | 0.000 | –30.627 | 0.000 |
| $R^2$ | 0.809[b] |  | 0.830[b] |  | 0.840[b] |  | 0.837[b] |  |
| Football |  |  |  |  |  |  |  |  |
| Percent in Top 10 % High School | 0.128 | 0.004 | 0.111 | 0.015 | 0.112 | 0.014 | 0.114 | 0.013 |
| 25th Percentile Composite ACT | 2.113 | 0.000 | 2.111 | 0.000 | 2.015 | 0.000 | 1.957 | 0.000 |
| Percent of Students Living on Campus | 0.328 | 0.000 | 0.337 | 0.000 | 0.341 | 0.000 | 0.345 | 0.000 |
| Percent First Time Freshmen | 0.614 | 0.002 | 0.603 | 0.002 | 0.616 | 0.002 | 0.609 | 0.002 |
| Total Enrollment (in 000s) | 0.258 | 0.001 | 0.230 | 0.004 | 0.223 | 0.006 | 0.230 | 0.005 |
| Percent of Courses Taught by TAs | 0.186 | 0.041 | 0.132 | 0.170 | 0.144 | 0.135 | 0.143 | 0.138 |
| Football Index 1990–98 |  |  | 1.324 | 0.117 | –0.785 | 0.676 | –0.685 | 0.684 |
| Football by Size Interaction |  |  |  |  | 0.080 | 0.212 |  |  |
| Middle 1/3 of Enrollment by Football Index |  |  |  |  |  |  | 0.091 | 0.329 |
| Highest 1/3 of Enrollment by Football Index[a] |  |  |  |  |  |  | 0.078 | 0.141 |
| Constant | –20.546 | 0.016 | –18.824 | 0.027 | –17.320 | 0.042 | –16.347 | 0.059 |
| $R^2$ | 0.809[b] |  | 0.812[b] |  | 0.814[b] |  | 0.813[b] |  |

TABLE 3 (*Continued*)

| Sport | Model I |  | Model II |  | Model III |  | Model IV |  |
|---|---|---|---|---|---|---|---|---|
|  | b | p | b | p | b | p | b | p |
| All Sports |  |  |  |  |  |  |  |  |
| Percent in Top 10 % High School | 0.128 | 0.004 | 0.145 | 0.001 | 0.123 | 0.004 | 0.125 | 0.004 |
| 25th Percentile Composite ACT | 2.113 | 0.000 | 2.313 | 0.000 | 2.231 | 0.000 | 2.161 | 0.000 |
| Percent of Students Living on Campus | 0.328 | 0.000 | 0.309 | 0.000 | 0.328 | 0.000 | 0.329 | 0.000 |
| Percent First Time Freshmen | 0.614 | 0.002 | 0.649 | 0.001 | 0.649 | 0.000 | 0.640 | 0.001 |
| Total Enrollment (in 000s) | 0.258 | 0.001 | 0.295 | 0.000 | 0.251 | 0.001 | 0.259 | 0.001 |
| Percent of Courses Taught by TAs | 0.186 | 0.041 | 0.237 | 0.011 | 0.264 | 0.003 | 0.262 | 0.004 |
| All Sports Index 1990–98 |  |  | −1.804 | 0.038 | −7.045 | 0.000 | −4.935 | 0.001 |
| All Sports by Size Interaction |  |  |  |  | 0.233 | 0.002 |  |  |
| Middle 1/3 of Enrollment by All Sports Index[a] |  |  |  |  |  |  | 0.171 | 0.053 |
| Highest 1/3 of Enrollment by All Sports Index |  |  |  |  |  |  | 0.165 | 0.002 |
| Constant | −20.546 | 0.016 | −26.809 | 0.003 | −24.736 | 0.004 | −23.153 | 0.008 |
| $R^2$ | 0.809[b] |  | 0.816[b] |  | 0.834[b] |  | 0.832[b] |  |

[a] Universities with an enrollment between 18,400 to 27,500 make up the middle 1/3 and those over 28,000 are in the upper 1/3 of the distribution; universities with an enrollment under 18,000 are the reference.

[b] R-Square is adjusted for degrees of freedom.

living on campus also has a strong positive effect on graduation rates. We interpret this relationship to indicate that the percentage living on campus reflects the greater likelihood that students have common associations and develop a stronger sense of community. In addition, the percentage living on campus is associated with the diversity of the student body, and a homogenous student population is more conducive for interaction and the development of social communities. Although the standardized coefficient for the percentage of all students who are freshmen is weaker ($\beta = 0.335$ vs. 0.180 for the percentage living on campus), it is also positive for the reasons that support the relationship between the percentage living on campus and retention. Again, this finding replicates other studies.

The relationship between size and graduation in Table 3 is positive. A positive association between graduation rates and size was found by Tucker (1992), who analyzed the relationship between graduation rates and success in athletics in 64 major universities. Kamens (1971) reports a positive association between university size and retention, which he explains as a consequence of the superior status-allocating ability of large schools. Huffman & Schneiderman (1997), however, report a negative association between size and graduation rates. The Huffman and Schneiderman analysis is based on 800 four-year postsecondary institutions using NCES IPEDS data and finds a –0.102 correlation between enrollment and the average six-year graduation (p. 17). When Model I in Table 3 is estimated for 280 Division II universities (analysis not shown), the beta for the effect of the number of full-time students on graduation rates is 0.155 for Division II vs. 0.169 for Division I. The bivariate correlation between size and graduation rates for 376 Division I and II schools combined is 0.345. A plausible explanation for the difference between Huffman and Schneiderman and our study is that the former includes a large number of very small colleges and the association between size and graduation is negative among the smallest schools.[4]

The percentage of courses that are taught by teaching assistants, although weak, has a positive effect on graduation rates. This is surprising, because teaching assistants lack classroom experience and are generally rated lower than are full-time instructors or professors (Marsh & Duncan, 1992; Wachtel, 1998). To the extent that the classroom experience is regarded to be of lower quality when taught by TAs, we had expected a negative effect on graduation, since poor performance in the classroom should inhibit the development of learning communities. Although we are unaware of studies that have examined this specific relationship at the macro or institutional level, Gilmore (1990) reports a positive relationship between the percentage of part-time instructors and graduation rates, which he attributes to increased social interaction. It is possible that the positive relationship between TAs and graduation is spurious, because institutions with a high percentage of TAs are major research universities, which as a group have higher admission standards and admission selectivity, both of which have a strong positive effect on graduation rates. Although we have conducted an extensive review of relevant studies, we are unable to locate a specific analysis of the relationship between the use of TAs as teachers and institutional characteristics.

The hypothesis implied by the theoretical model of student integration that successful college sports programs would have *higher graduation rates is not supported in our analysis.* Model II in Table 3 shows that universities with a strong basketball program and a strong weighted sports program have *lower* graduation rates. Specifically, a gain of one standard deviation on our measure of basketball and the weighted index for all sports reduces the graduation rate by 2.66 and 1.80%, respectively.[5] Although the association between graduation and success in football is in the hypothesized direction, it fails to reach statistical significance. Tucker (1992) used similar measures of sport success but different independent variables and found a significant negative effect of football success on graduation rates, but a weak (not significant) positive impact for basketball.

Alternative measures (not shown) of basketball and the sport index were used with similar results. The standardized slope for the effect of basketball success measured as a binary (ranked versus not ranked for the ten-year period) is –0.152 ($p$ = 0.003), and when the sum of years that the program was ranked from 1990–1999 is used, the coefficient is –0.123 ($p$ = 0.012). Dummy variables based on teams that were in the lower and upper one-half of the distribution of sum for ranked teams and referenced against unranked teams have coefficients of –0.123 and –0.142. Both are statistically significant with probabilities of 0.02 and 0.006. Dummy variables reflecting programs ranked in the lower and upper one half of the index for the weighted sports index are –0.022 ($p$ = 0. 713) and –0.120 ($p$ = 0.074).

Size of the institution is an important explanatory variable. At large diverse universities, successful basketball programs, (or any sport program) should serve to bring diverse students together into social communities and foster identification with the institution and its goals. When the institution is smaller and more homogenous (with strong identification), sport success could act as a distraction. If this assumption is true, then we expect that institution size will explain the relationship between sport success and graduation rates. Specifically, smaller institutions with strong sports programs, particularly basketball programs, will experience relatively more disruption, and graduation rates will be attenuated.[6]

Formal organizational theory holds that increased size gives rise to increased specialization and differentiation of responsibility, which weakens formal coordination and control (Blau, 1970; Scott, 1975; Meyer, 1972). Baldrige, Curtis, Ecker and Riley (1973, 1977) find that large universities are more likely to be divided into a large number of specialized, autonomous units and departments, and that academic and professional autonomy and authority increase with the size of the university. Hiller and Bogart (1973) report a positive association between faculty alienation and size. Thus, large universities are not only more diverse, but also afford faculty and students greater autonomy, thereby weakening the formal mechanisms of institutional control and producing a looser coupling of students and faculty to academic and institutional goals. Clark and Trow (1966) argue that large, diverse schools are more likely to be characterized by cosmopolitan, professional identification. "In pulling the teachers away from the students, the faculty's professional interests promote the rise and persistence of an autonomous student culture which is then filled in by student interests" (1966, p. 41). Morgan and Alwin (1980) find a strong negative relationship between school size and rates of participation in the formal behavior settings of the school.

In order to explore the effect of size and sport success on graduation further, we include an interaction term between the enrollment of the university and sports success. If our thinking is valid, then we expect that the effect of sports success will differ for institutions of different sizes. It is likely that total enrollment reflects the heterogeneity of the campus and not just the number of students. Larger campuses have a greater diversity of programs, courses, course experiences, living arrangements, and type of students. Model III in Table 3 contains an interaction term between total enrollment and sport success. The interaction is significant and positive for Basketball Success and All Sport Success and indicates that increased size reduces the negative impact of the two measures of sports success on graduation. The football success, while negative, is not significant. The remaining independent variables remain similar to Models I and II.

Because of the risk of collinearity, Model IV uses dummy variables based on the interaction between enrollment and sport success by dividing the distribution of enrollment into three levels; universities in the lowest 1/3 of the distribution are used as reference.[7] As can be seen, the effect of basketball success increases from –2.67 without the interaction term to –5.40 when it is included. The two interaction terms, however, are positive and significant. Moreover, the coefficient for the largest universities is 0.132 and is smaller for institutions in the middle 1/3 of the distribution. These coefficients represent the change in slope of basketball success due to the interaction. For example, the effect of successful basketball programs among the largest universities is –5.27 (–5.40+0.132). For schools in the middle 1/3 of the distribution, the net effect is –5.28, and for the smallest (the reference category), it is –5.40. Thus, it appears that the size by sports interaction is not linear but obtains primarily among schools in the lowest size category.

A similar relationship is obtained when the weighted sports index is examined. The effect of sports on graduation drops from –4.94 for the smallest institutions to –4.77 for schools in the middle of the distribution, and is –4.78 for those in the largest. Inclusion of the enrollment by sport success interaction term for football fails to reach significance. The interaction between enrollment and basketball success indicates that the effect of successful sports programs is larger among smaller schools. We feel that enrollment is a proxy for the heterogeneity and diversity of the institution. Large universities not only have a large number of students, but have also extensive graduate and professional programs. Moreover, the physical size of the campus is larger and more complex. Sports on large, diverse campuses may well provide a source of identification with the institution and promote involvement and identification with the institution. However, on a smaller, more homogeneous campus, involvement in a successful sports program is more intense, conflicts with academic goals, and may lead to goal displacement.

These results raise two important questions. First, why is graduation affected negatively by basketball and total sport success, and second, why does success in basketball and football programs have different relationships with graduation rates? The final answer to these questions will depend on replicating these results with different data. However, we can examine this issue further by exploring some of the implications of the theory of student integration. Central to the theory of student integration is the concept of involvement in social and learning communities. Student involvement in social communities may conflict with involvement in learning communities. As noted earlier, if the student's social community is based on interests and activities that do not promote learning, then we would expect a reduction in academic success (grades, retention, graduation). We ask the question of the extent that social activities compete with learning objectives. We are not speaking here as much about the obvious effects, such as not spending time on studies, but on a more general issue of reduced commitment to goals of the institution.

There are several important differences in the way that football and basketball seasons affect students. First, football is less frequent than basketball. While a typical basketball season consists of over two-dozen games (more if tournaments are included), there are about one half as many football games. Second, although data are not available, we argue that football is of greater significance for alumni than for students; college football is an elaborate ritual, filling a weekend with extensive alumni activities (Deegan & Stein, 1989). Third, while attendance at football games, especially at Division I games is much larger than is true of basketball, we suspect that students make up a substantially larger proportion of fans at most basketball games than is true for football. It is also interesting to note that in Tucker's (1992) study, football had a significant negative effect on graduation, but basketball was not significant. Tucker used graduation and sport data from 1989, when basketball was much less popular than it is today. Attendance at Division I-A football games increased from roughly 32,000 in 1978 to 42,000 between 1982 and 1989. Since then, there has been a gradual decline; in 1993, attendance at college football games nationwide dropped below 35 million for the first time in 35 years. Between 1989 and 1994, gross receipts for the 18 postseason college football bowls increased by 33%, while basketball tournament receipts increased 120% (Wieberg, 1994).

Our results suggest that, contrary to our expectations, successful sports programs may actually have a negative impact on graduation rates. In addition, the implications of our analysis may be potentially important for theories of student integration and, more broadly, organizational theory. We explore the nature of this relationship and suggest some avenues for future research.

## *Discussion*

We begin our speculation about the negative relationship between successful intercollegiate sports programs and graduation rates by noting that social integration is neither a necessary, nor sufficient condition for academic integration. Increased social integration, under certain circumstances, does not appear to strengthen the commitment to institutional norms of academic success or progress (Thomas, 2000). Similarly, our findings suggest that successful intercollegiate sports may not provide a mechanism for academic integration and may, under certain conditions, actually weaken it. The link between social and academic communities has been assumed, at least tacitly, to be complementary—increased social integration is assumed a priori to strengthen academic integration and promote desirable student outcomes. This assumption is logical, since social communities are nested within the student's overall academic community, and thus, social ties integrated with the academic ties should, by implication, be in harmony with existent academic goals. In addition, a diverse body of research (Astin, 1994; Pascarella & Terenzini, 1980) appears to support this assumption. In order to resolve this possible conflict between our results and the existing literature, we begin by pointing out that social involvement, if carried too far, can result in suboptimal outcomes. Soccer hooliganism based on ethnicity or ultra-nationalism is an extreme manifestation of this in sports (Buford, 1992; Giulianotti, Bonney, & Hepworth, 1994; Hughson, 2000).

Thus, although our findings appear to run counter to previous studies of persistence, we argue that they actually clarify rather than contradict them. Overall, many of the factors that inhibit social integration may also weaken academic integration and attenuate persistence (such as commuting, maintaining friendships with peers not attending college, off-campus employment). In addition, activities that are not part of the student's academic environment, such as commuting or off-campus employment, may also weaken academic and/or social integration and thus compete with learning objectives as well as a student's overall commitment to graduation.

On the other hand, campus-based activities, as catalysts for social integration, are expected to enhance academic integration. But this might not always be the case. Clark and Trow (1966), Kuh (1995), and Moffatt (1989) document that a significant amount of the discretionary time available to students is directed towards the achievement of social integration (i.e., the pursuit of "fun") often at the expense of the pursuit of academic integration (i.e., the pursuit of "learning"). Furthermore, Astin (1994, p. 398) claims that "the single most important source of influence" in the lives of college students is their peers. Likewise Thomas (2000) empirically documents that overlapping and multiplex social ties serve both as channels for communication as well as powerful mechanisms for socialization. It follows that such ties could, and most likely would be utilized by students to persuade their peers to participate in recreational group activities directly related to the emergent success of their schools intercollegiate athletic team (pep rallies, or viewing athletic competition in a group setting), even when such participation might conflict with demands tied to overall academic success (preparing for an exam, or writing a paper).

Ironically, our results suggest that social involvement in intercollegiate sports, a process that broadly and indirectly is expected to facilitate graduation, may work in combination with other institutional characteristics to inhibit it. In order to better understand this counter-intuitive aggregate-level outcome, we advocate examining the negative relationship between graduation rates and success in intercollegiate sports in a way that calls attention to subtle organizational dynamics that might affect the potentially interrelated nature of academic and social integration.

We begin by pointing out that colleges and universities are educational organizations. Organizations are goal-directed, boundary-maintaining, activity systems that are created in order to accomplish goals that cannot be accomplished by an individual's effort alone (Aldrich, 1999). Organizational activity systems are composed of bounded sets of interdependent role behaviors, or in other words, sets of routines and bundles of activities (Nelson & Winter, 1982). Such routines and activities are "the forms, rules, procedures, conventions, strategies, and technologies around which organizations are constructed and through which they operate" (Levitt & March, 1988, p. 320).

Organizations are goal-directed systems within which individual members work, overall, toward collective goals, although individual participants might personally feel indifferent to, alienated from, or in conflict with one or more of the organization's collective goals (Aldrich, 1999). Thus, an assistant professor on the faculty of a research university might direct his or her focus on the research and scholarly publishing tasks that are necessary to achieve tenure and might feel indifferent to the playing schedule or ongoing performance of the organization's athletic teams.

Organizational goals are often accomplished only through an appreciation of, and delicate balancing of, the competing collective interests of the individuals and groups that compose the organization. Hypothetically, a graduate student teaching assistant, contrary to a departmental policy, might adjust a course's curriculum or scheduled examination dates as students shift their attention and increase their social interaction when one of the school's athletic teams is invited to a bowl game or becomes one of the NCAA basketball's "sweet sixteen" or "final four." In order to achieve this precarious balancing of special interests, organizational members often engage in a variety of adaptive behaviors that range from the minimizing of self-interest to complete rejection of organizational goals, as well as disregarding the conflicting goals of other member groups within the organization. Thus, individually or as a group, graduate assistants, the organization's faculty and administrative staff, and the undergraduate student population of a college or university may all react differently to the emergent, changing schedule of a successful intercollegiate team. Locked into a demanding and rigid schedule necessary for the achievement of tenure, a faculty member might conduct a scheduled examination with little awareness of, or deference to an increase in student social interaction that is a diffuse outcome of the performance of a winning football or basketball team, despite thinly veiled administrative pleas to the contrary. Whereas sympathetic, or pragmatic faculty or teaching assistants might adjust their examination dates or course requirements in order to demonstrate "school spirit" or organizational solidarity.

Given the nature of formal organizations, it is not surprising that one of the most pervasive concepts used in organizational research is the distinction between formal and informal activities. Formal activities are directed at the attainment of specific institutional goals, while activities that take place within the organization but lack a rational means-end relationship with the formal goals constitute informal activities. Numerous studies document the way in which conflicts between formal and informal activities often produce negative outcomes in organizations. What is formal or informal, however, depends on the organizational context. In the present context, activities that are directed at improving persistence, such as freshman orientation, special advising, and transition programs would be considered formal in the context of academic goals. The same programs would be regarded as informal from the standpoint of providing recreation. From the standpoint of academic goals, intercollegiate sports programs are intended to provide students and alumni with entertainment or any number of other things and constitute informal activities. Seen from this perspective, heightened interest in sports competes with the formal academic goals and limits attainment. If this view is adopted, then intercollegiate sport success is simply another external barrier to graduation, like commuting or having a job.

While we feel that our findings are important for theories of student persistence, we also believe they have implications for persistence programs. We suspect that many colleges and universities commit substantial sums of money to athletic programs because it will improve persistence and graduation rates. The implications of either the student integration model or the formal organization perspective are clear. It is unreasonable to expect that changing activities intended to meet one set of objectives will provide an effective way to achieve other goals.

### *Future Analysis*

Several issues in our study need to be addressed in future studies. First, we imply that basketball has a stronger negative effect on graduation because it is more important and, therefore, more disruptive of academic integration than football. We do not know how students experience intercollegiate athletics in general or how student definitions of different athletic events vary by campus characteristics. Moreover, we doubt that direct measures of sport intensity exist. However, there are several alternatives that may be fruitful. One approach is to examine the impact of football versus basketball during the era when basketball was not as popular. This would consist or repeating Tucker's 1992 study including the size by sport success interactions. Another approach is to capture the excitement generated by other sports. If the causal mechanism is the intensity and excitement generated by sports, then identification of particular sports on specific campuses should produce similar results. For example, ice hockey is an exciting sport on some campuses, and if our hypothesis is true, we expect that colleges with strong ice hockey programs will have attenuated graduation rates. A third approach would be a longitudinal analysis of change in both sports success and graduation rates by institutions stratified by size.

Another issue needing attention is our interpretation of the interaction between enrollment and sport success. We speculate that enrollment is a proxy for homogeneity and that smaller, homogeneous campuses are more likely to experience academic disruption when successful sports programs are present. Clearly, this hypothesis needs to be tested through the development of alternative indicators of campus heterogeneity.

## Notes

[1] Although Moffatt's ethnographic study of Rutgers discounts the importance of athletics to students on that campus, his fieldwork was conducted over twenty years ago and is limited to one campus. Indeed, Moffatt (1991, p. 45) states, "In the absence of similar ethnographic studies done elsewhere, there is no way of knowing for certain how typical material from a single institution is likely to be."

[2] We used principal components factor analysis to derive the following indices. Basketball Index: (Inverse of final rank for season · 0.888) + (number of NCAA tournament appearances · 0.937) + (number of regional championship appearances · 0.944). Football Index: (Inverse of final rank for season · 0.901) + (number of wins · 0.880) + (number of bowl appearances · 0.932). The Weighted Sports Index: (0.696 · number of championships in all sports) + (0.750 · Basketball Index) + (0.918 · Football Index). All indices are normalized with a zero mean and unit variance.

[3] It is important to note that the relationships among variables in Table 3 are for aggregate or institutional characteristics. The strong positive effect for the composite ACT means that institutions that are more selective have higher graduation rates. This relationship should not be confused with the relationship between an individual's ACT score and the probability of graduation. Although a strong association between ACT scores and graduation is expected in aggregate data, research typically finds a weak or no relationship when individual probabilities of graduation are examined. For a discussion of this issue, see Robinson, 1950.

[4] Support for this comes from the fact that there is a small but significant nonlinear component ($r^2 = 0.005, p = 0.001$) among the 376 colleges in the combined Division I and II data.

[5] For readers who are surprised that the bivariate correlation between the graduation rate and the Basketball Index in Table 2 is 0.078, but in Model II of Table 3 the slope is

&0.121 after controls are introduced, we give the following explanation. Two independent variables are primarily responsible for this reversal: the Composite 25th Percentile ACT and first-time freshmen as a percentage of the total enrollment. In order to illustrate this, we present the partial correlations between the Graduation Rate, the Basketball Index, and the two control variables. We label the Graduation Rate and the Basketball Index as variables 1 and 2 and the ACT 25th Percentile Composite and Percentage Full-Time Freshmen as variables 3 and 4. Equation (1), the partial correlation between variables 1 and 2 controlling for variable 3, is significant and negative (the variable[s] right of the dot represents the controlled variable). Equations (2) and (3) are the partial correlations between 1 and 4 and 2 and 4 controlling for variable 3. The final equation (4) is the second-order partial between variables 1 and 2 controlling for variables 3 and 4 is &0.2611. See Blalock (1970, pp. 455–462) for an explanation of this approach.

$$r_{12.3} = \frac{r_{12} - (r_{13})(r_{23})}{\sqrt{1 - r^2_{13}}\sqrt{1 - r^2_{23}}} = \frac{.078 - (.835)(.203)}{\sqrt{1 - .835^2}\sqrt{1 - .203^2}} = -.1699 \qquad (1)$$

$$r_{14.3} = \frac{r_{14} - (r_{13})(r_{43})}{\sqrt{1 - r^2_{13}}\sqrt{1 - r^2_{43}}} = \frac{.520 - (.835)(.355)}{\sqrt{1 - .835^2}\sqrt{1 - .355^2}} = .4347 \qquad (2)$$

$$r_{24.3} = \frac{r_{23} - (r_{24})(r43)}{\sqrt{1 - r^2_{23}}\sqrt{1 - r^2_{43}}} = \frac{.203 - (.198)(.355)}{\sqrt{1 - .198^2}\sqrt{1 - .355^2}} = .1445 \qquad (3)$$

$$r_{12\,34} = \frac{r_{12.3} - (r_{14.3})(r_{24.3})}{\sqrt{1 - r^2_{14.3}}\sqrt{1 - r^2_{24.3}}} = \frac{-.1699 - (.4347)(.1444)}{\sqrt{1 - .4347^2}\sqrt{1 - .1444^2}} = -.2611 \qquad (4)$$

[6] We tested the hypothesis that students who are less likely to graduate self-select into universities with strong sports programs with Multinomial Logit and Tobit Regression models. The Basketball Index was the dependent in both models and is left truncated with 14 schools having values of zero. In the multinomial logit model, Basketball Success was divided into four categories: no national rankings versus colleges in the lower, middle, and upper on-third of the distribution. None of the six independents used in Model I of Table 3 reached statistical significance, and more importantly, there were no consistent relationships between the independents and Basketball Success. In Tobit Regression, the 25th Percentile ACT had a significant *positive* effect on Basketball Success. Because the 25th percentile ACT and graduation rates have a strong positive association, it is not possible for this relationship to attenuate graduation rates among schools with freshmen with high ACT scores in the models we use.

[7] The addition of the interaction terms between the three Sports Indices and Size produce variance inflation factors (VIF) between 8.2 and 8.8 for the three measures of Sport Success. These values approach the conventional threshold of 10, where collinearity is considered a problem. The largest VIFs for Model IV are in the range of 4.7 to 4.8.

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# Mission, Multiculturalism, and the Liberal Arts College: A Qualitative Investigation

*Introduction*

In the last decade of the twentieth century, concerns about the impact of diverse interests on college campuses gave rise to a reconsideration of the value and purpose of liberal education. What began with the Carnegie Foundation for the Advancement of Teaching, *Campus Life: In Search of Community* (1990), became an academic enterprise to reassert liberal education's worth for higher education's desire for democratic and pluralistic community. Projects like the Association of American College and Universities' "American Commitments Initiatives", *Diversity, Democracy and Liberal Learning* (1995), *The Drama of Diversity and Democracy* (1995), and *American Pluralism and the College Curriculum* (1995), invoked a rhetoric that assumes the compatibility of liberal education with multiculturalism, especially as it is played out on America's liberal arts college campuses.[1]

America's liberal arts colleges are ground zero for demonstrating the assertion that liberal education can meet the challenges of multiculturalism and engender pluralistic community. The disparate cultural and educational values brought to the colleges by faculty and students outside the college's traditional norms have challenged their liberal mission, and yet it is that very mission that is believed to reconcile any and all incompatibilities. Institutions whose "emphasis on the value of community"

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(Koblick, 1999, p. x) and intellectual freedom of inquiry characterize their mission, liberal arts colleges entered the post-modern era believing that liberal inquiry could stabilize what higher education scholars characterized as a fragmented college community (e. g., see Altbach, 1983, and Boyer, 1983). Regardless of race or ethnicity, liberal education has been purported to promote community in spite of the differences in the lived experiences of college faculty, students, and staff. Liberal education has been deemed "equally relevant to all forms of higher education and to all students" (AAC&U, 1999, p. 7).

Parker Palmer (1987) astutely noted that as higher education scholars and participants we should concern ourselves with the "nature of community in the modern college and university" (p. 20). But more specifically, Parker proposed that we think about community in higher education as an epistemological concern, one that explores "the relation of community to the very mode of knowing dominant in the academy" (p. 22). In this way, our study reflects an effort to understand the relation between the traditional and dominant liberal epistemology that grounds the academic mission of one liberal arts college and its desire for multicultural community.

The purpose of this qualitative research project, then, was to assess how faculty, students, and administrators at one liberal arts college understand the mission of liberal education and its relevance for multicultural community. This inquiry set out to ascertain the compatibility of institutional participants' understanding of their liberal educational mission with their understanding of their institution's desire to attain multicultural community. In our view, this investigation indicates that before multicultural community can be formed on this traditional liberal arts college campus the epistemological foundation of the college's liberal tradition must be critically examined, questioned, and finally, transformed. The desire by faculty to employ traditional liberal inquiry as the means to cancel out any 'contamination' that ethnic and/or racial difference may bring to knowledge is the heart of the matter here.

## *Historical and Theoretical Foundation*

Anchored to 17th-century humanism, liberal education in America, though hardly stable and invariable (Kimball, 1986; Paris & Kimball, 2000), has been the major influence on undergraduate education in America despite challenges by utilitarian and vocational forces. Liberal education, whether housed in the small, residential college or the expansive multiversity, is believed to inculcate democratic values (Lang, 1999), developing in students a critical intelligence, and a belief in the value of knowledge "for its own sake." Liberal learning "prizes curiosity" and "by its nature, therefore, liberal learning is global and pluralistic" (AAC&U, 1999, p. 7). Through liberal education, it is alleged that students learn reasoned civility and the skills and habits of mind that will enable them to seek truth for the sake of democratic consensus. This humanistic *liberalis* is believed to enable students to think independently, making possible pluralistic agreement (Nussbaum, 1997). Built on values that "aspire to nurture the growth of human talent in the service of human freedom," liberal education is believed to free individuals so that community, especially intellectual community, is made possible (Cronon, 1999, p. 6). Liberal education is said to socialize students to be free thinking individuals who will build democratic "solidarity" (Rorty, 1989).

The history of the American liberal arts college suggests that its character and desire for community can be found in the conception of residential colleges founded by humanistic scholars and Christian clerics. These colleges provided a "harboring community" which could "foster a communal sense of commitment to a moral and religious vision of liberal education" (Kimball, 1996, p. 29). A common set of objectives fostered a common culture on these campuses, a Christian culture in which piety and knowledge were inseparable. The liberal arts college became an educational institution in which Christian men found that their cultural and religious heritage was both the source and consequence of knowledge, and that that knowledge served to make community possible. The "confidence of the community" (Brubacher & Rudy, 1997, p. 45) was deduced from shared religious and moral values and induced by a rationalism in which autonomy, individuality, and rational self-control were prized. Liberal education would bring to students the "liberal clerisy," an intellectual and cultural elite who would "ennoble" students to carry on the tasks of liberal humanism (Hollinger, 1996, p. 94). Endowed with the qualities of a liberal culture and democracy, liberally educated men would be skilled at truth-seeking dialogue and debate, the tools necessary for enacting a communal spirit in a democracy.

The communal spirit that characterized early liberal education in the United States weathered the rise of the secularization of knowledge and the diversification of faculty and students in the modern era by reasserting the enduring value of liberal thinking. Liberal thinking could provide faculty and students with the "mutual intelligibility" borne of "a commonality of knowledge and of symbolization" (Tollet, 1975, pp. 278–282). Liberal thinking, whose authority is reason and not experience, could confer on students the capacity to "call their minds their own" (Nussbaum, 1997, p. 293), thereby enabling democratic pluralism. Liberally educated students can, even without the commonality of culture, engage in critical examination and reasoned argumentation to promote a pluralistic community. Even when disguised as "general education," liberal thinking is believed to bring to the modern American college, replete with "fragmentation and competing special interests" (Boyer, 1987, p. 83), shared purposes and communal integration.

Despite the confidence in liberal education's ability to foster a democratic and pluralistic common culture on campus, the significant change in the student body since the 1970s proved alarming. With the inclusion of traditionally underrepresented groups and radicalized epistemologies in the academic disciplines, colleges struggled to retain the spirit of community borne of unified knowledge. Liberal education, in both colleges and universities, found itself unable to foster the communal campus of old. Dissent seemed irreconcilable on campuses in the last thirty years of the 20th century.

Consequently, college presidents retained the Carnegie Foundation for the Advancement of Teaching to study the "loss of community" on America's postsecondary campuses. The aim of the year-long study was to redefine the ideal of community in higher education, a goal of liberal thinking still deemed a worthy educational enterprise. Convinced that the "cultural coherence" of college was gradually disappearing with the increasing diversity of students and faculty, college presidents sought out a means to "strengthen common purposes and shared experiences" on their campuses (Boyer, 1983, p. 327). To that end, principles were articulated to attain community among competing claims within liberal education and "provide a model for the nation" (p. 328).

The language of the Carnegie report equated "community" with "common purposes," whether academic or social, that were challenged or lost on America's postsecondary campuses. In the explicit use of the word "common" to modify "purposes" is the implicit assumption that purposes are universal and familiar to all involved. A collegiate community of common purposes, consequently, was put forth by the report as an accepted condition that could be retrieved. Though Boyer pointed out that the challenges of multiculturalism on campus "reflected a growing lack of consensus over the very nature of our community" (1983, p. 324), the Carnegie project did not subject to critical scrutiny the accepted *notion* of community predicated on the epistemology of liberalism. The language of naturalness to describe community in the report hinted at the epistemological challenge that such a view of community encounters when faced with multicultural demands. Because they lay claim to knowledge that is historic and experiential, multicultural forces present contradictions to liberal education's absolute, unified and objective knowledge traditions, a paradox unaccounted for by the Carnegie project.

The failure of liberal education to reconcile the contradictions and tensions brought to campus by multicultural forces has prompted our investigation. The principles of community through liberal education include a presumed universal understanding of civility, a reconciliation of the politics of the identity of the individual with her or his group affiliation, a reconciliation of a vision of shared educational goals with the politics of difference, and ignoring difference in the name of unity. The nature of the challenge brought by multiculturalism to liberal education rests on the defense of liberal education as perennially applicable to the human condition (a-historic); that it engenders a spirit of community via the democratic resolution of tension between individual rights and social responsibilities; and its humanistic character with an emphasis on reason, scientific inquiry, and human fulfillment (Martínez Alemán, 2001).

"Multiculturalism" presents significant epistemological challenges to liberal education. Multiculturalism privileges the heterogeneity of values and virtues, adherence to group identity, and the politics of group rights versus individual rights. Its emphasis is on historic relations and social arrangements, reminding the academic enterprise that like culture, knowledge does not exist in a "vacuum." Here, "multiculturalism" is meant to identify knowledge claims that are "the most pointed challenge to liberalism's neutrality" (Menand, 1995).

Although the terms "multicultural" and "diversity" are often used interchangeably, in this investigation "multiculturalism" refers to a specific epistemological position while "diversity" is understood as a theoretically and epistemologically uncomplicated pluralism that often manifests itself as a "structural diversity" (Gurin, 1999; Hurtado, Milem, Clayton-Pedersen, & Allen, 1998) in which assimilation as an epistemological objective is ignored or overlooked. We recognize that not all researchers' use of the term "diversity" is meant to imply simply a demographic condition (the number of students of color enrolled). Gurin, for example, presents two additional and interrelated dimensions of collegiate diversity, "classroom diversity" and "informal interactional diversity." But in this research, the epistemological foundation of these dimensions remains unchallenged. "Classroom diversity," for example, is a curriculum that "incorporate(s) knowledge about diverse groups into the curriculum" (Expert testimony, 1999, para. 3). Knowledge "about" diverse groups may not necessarily be knowledge that displaces liberal ideas about truth and reality.[2] We wish here to posit that our use of "multiculturalism" (and later "Deweyan multiculturalism") is categorically distinct from these uses of the term "diversity." For the purposes of this investigation, we do not wish to conflate the two terms.

This investigation rests on the assertion that higher education's liberal ideal of community and multiculturalism are contradictory. The contradiction is the consequence of liberal values that dominate its educational manifestations in the American college, values reflecting an anticommunal epistemology. Reminiscent of Palmer's (1987) charge that what prevents community in higher education is its dominant "mode of knowing," an epistemology he refers to as "objectivism," traditional liberal inquiry is organized around a-historic, a-contextual and antirelational principles. Unlike communal epistemologies like feminism whose inquiry is dedicated to understanding "the relational nature of reality" (Palmer, 1987, p. 24), traditional liberal inquiry gives primacy and privilege to the detached and self-sustaining Individual. The belief in the timelessness of knowledge organized around absolute principles and the neutrality of human inquiry form the nucleus of these liberal educational principles. Liberal education, then, relies on "cultural independence and insularity, and its logical outcome social and intellectual unanimity"(Martínez Alemán, 2001, p. 487). Resting on humanistic certainty that viewed knowledge as dependent on absolutes and as an end in itself, liberal education's mission esteems the pursuit of truth free of the effects of bodied experiences and time. Liberalism's abstract *Individual* is unmarked by culture and bodied experience and is able to engage in objective inquiry. Privileging mind unaffected by bodied experience, liberalism's Individual engages in inquiry unencumbered by history and context. Guided by an axiomatic morality that endorses and advances "a Protestant, Anglo-Saxon masculinity infused with Enlightenment ideas about self, individuation, and universal good" (Martínez Alemán, 2001, p. 487), liberal thinking is at odds with the context-driven inquiry and experiential knowledge claims of communal epistemologies like multiculturalism. Thus, multiculturalism, or knowledge claims that are historic and value-laden confront liberal education's epistemological tradition of value-free inquiry.

But despite its contradictory epistemological position, just as liberal education in and of itself can not produce community, neither can multiculturalism. Multiculturalism and liberal education will require a third reconciliatory construct to produce community. "Deweyan multiculturalism" will be proposed as this third construct.

## *Theoretical Foundation: Deweyan Multiculturalism*

The assertion that multiculturalism and liberal education are contradictory forces provided the theoretical foundation for an initial content analysis that we conducted and which was designed to assess whether "the institutional agent of liberal thinking and learning, the Liberal Arts College, [could] give rise to effective communitarian sensibilities"

(Martínez Alemán & Salkever, 2001, p. 2). The framework induced, "Deweyan multiculturalism," reflected John Dewey's pragmatic understanding of culture, communication, and sociality.[3] Consequently, the framework was grounded on a democratic ethics that sought to reconcile ethnic and racial pluralism with a traditional understanding of liberal values (Martínez Alemán, 2001).

Using the work of American pragmatist John Dewey as a theoretical guide, Martínez Alemán (2001) constructed an analysis of the contradictory relationship between liberal education and multiculturalism. This analysis yielded a framework in which the paradoxical elements of liberal learning and multiculturalism are reconciled and the growth of community is made theoretically plausible. In this framework, it is the epistemological center of liberal learning that is most challenged, a center that engenders a value of purity, objectivity, and certainty.

Briefly, this framework, "Deweyan multiculturalism," can be characterized in the following ways. A method of thinking, it is a means of inquiry whose projected end is not characterized by the assimilation of dominant liberal views (Martínez Alemán, 2001). "Deweyan multiculturalism" is a framework in which difference is the means of thinking, a means that provides opportunities for the effective communication of difference, a means that stimulates the intellectual growth necessary for community. In "Deweyan multiculturalism" difference and sameness alter each other, serving to promote the growth of community. Individuals are not isolated, nor are their interactions restricted as a consequence of a broader and more inclusive communicative environment. In Deweyan multiculturalism, because individuals are understood as contextual and historic, meaning is communicated as a result of "mindfulness reflective of experience" (Martínez Alemán, 2001, p. 491). Thus, individuals can advance shared and not "common" communal purposes as a consequence of the communication of difference—individual and/or group. The value placed on difference as the means of thinking is what distinguishes "Deweyan multiculturalism" as the communal epistemology solicited by Palmer (1987). In contrast to a liberal view of community, a communal epistemology brings about a "community" that engenders shared purposes that change (or don't change) with new members and new knowledge.

"Deweyan multiculturalism," is the theoretical foundation that guides this particular qualitative inquiry. Our purpose is to better understand how the modern liberal arts college might be able to match its liberal mission to its multicultural commitments. In our investigation, we use participant interviews as case data to explore how one institution negotiates its multi-faceted commitments to liberal education and multiculturalism and to a communal ideal. By thoroughly and methodically listening to faculty, students, and administrators, we identified how one liberal arts college is able or unable to carry out the communal aims of liberal education together with their multicultural aspirations.

## *Literature Review*

Our review of the research literature suggests that no qualitative investigations of this kind have been conducted on liberal arts college campuses. Much of the literature on the American liberal arts college deals with its ability to "survive" given cost or disciplinary specialization challenges (*e.g.*, see Breneman, 1983; 1994), or on its educational relevance for a vocationally minded public (*e.g.*, see Hersh, 1997). Liberal arts colleges are often also represented in large sample studies using Cooperative Institutional Research Program (CIRP) or UCLA Higher Education Research Institute databases, or in independent longitudinal research projects like Bowen & Bok (1998). In these large sample studies, however, the epistemological coherence between liberal education and multiculturalism is unexamined. Research on institutional and programmatic diversity initiatives is also commonplace (*e.g.*, see Adams, 1992), but we find that these research endeavors also assume the compatibility of liberal education with multiculturalism.

Most prominent of the research on institutional and programmatic diversity initiatives is the undertaking by the American Association of Colleges and Universities' "Democratic Commitments Initiatives" (1995) and the American Council on Education's "Does Diversity Make a Difference" (2000). These research projects are designed to ascertain the value of diversity for higher learning. As in other research, these projects rest on presumptions of compatibility between pluralism, diversity, or multiculturalism and undergraduate liberal learning.

The American Association of Colleges and Universities' "Democratic Commitments Initiatives" (1995) and related projects have sought to remodel and modify liberal college curricula. Curricular transformation has been documented in the literature on diversity and liberal education, particularly through reports and documents produced by the AAC&U. In the curricular transformation process, institutions revise their curricula to include diversity "to transform curricula to correct past exclusions, better prepare students for increasingly complex and diverse communities and workplaces, and to provide students with the most current and intellectually comprehensive understanding of history, culture and society" (Humphreys & Schneider, 1997, p. 1). These curricular initiatives most often take the form of a single required diversity course, less frequently, a series of courses, and rarely, an infusion of non-Western, nontraditional viewpoints and experiences throughout the courses and the curriculum (Schmitz, 1992). This curricular transformation viewed as "the heart and mind of the matter" (Musil, 1996, p. 224) is intended to produce multiple outcomes in preparing students to function in a multicultural society. So while student outcomes have been studied by the AAC&U and other researchers, what is left unexamined is the bearing of attempts at curricular transformation on the academic purpose, the identity, and the mission of the institution.

The research literature on "diversity" in higher education has mainly considered its impact on curriculum, learning, and student satisfaction and not on the relationship between liberal education and multiculturalism. Additionally, most empirical research on diversity has not concentrated on epistemological issues, nor has it focused attention on one single institution. Studies like the American Council of Education's three part, "Does Diversity Make a Difference?" (2000) and Milem (1999) present empirical evidence that the educational benefit of racial and ethnic heterogeneity on campus can't be reproduced in homogeneous collegiate environments. Astin (1993) and Smith, Wolf and Morrison (1995) present evidence that an institution's attention and commitment to issues of diversity correlates with the success and satisfaction of many students. Astin (1993), Duster (1993), and Kogler (1999) all point to the positive impact of diversity in the curriculum. Other studies investigate the positive developmental worth of diversity initiatives (Bensimon, 1995; Hurtado, 1992; Nora, 1987; Pascarella, Edison, Nora, Hagedorn, & Terenzini (1996). Other studies like Cabrera, Nora, Terenzini, Pascarella, and Hagedorn (1999) also examine the relationship between racial prejudice on campus and its effects on the cognitive and affective development of students. But like the diversity initiatives and projects noted in the preceding paragraph, these studies did not challenge the inherent contradiction between multicultural and liberal educational aims and did not conduct qualitative inquiry on the small, residential, predominantly white campus that typifies the traditional American liberal arts college.

Drawing on these and other studies from multi-institutional national data, Patricia Gurin's important expert testimony in *Gratz, et al. v. Bollinger, et al.* and *Grutter, et al. v. Bollinger, et al.* reiterates the value of racial and ethnic diversity for college and university campuses. Seeking to make the foundational argument for diversity as a compelling interest in American higher education, Gurin reinforces through the compilation of research results a positive relationship between a racially/ethnically diverse campus and student learning, and between a racially/ethnically diverse campus and "democratic outcomes." The conditions for these positive relationships are cited as "structural diversity" (racial and ethnic composition of the student body), "classroom diversity" (courses that "incorporate knowledge about diverse groups"), and "informal interactional diversity" (peer-group influences). Should these three conditions exist according to Gurin's review of the research literature, students will experience growth on critical thinking, cultural awareness, and tolerance.

Though in our view Gurin's testimony does present a strong case for ethnic and racial diversity as a compelling interest, relative to our inquiry it falls short in one important way. As previously stated, research on the impact of diversity has not complicated or questioned the epistemological correspondence between liberal educational principles and goals and a contradictory multiculturalism. Gurin's (1999) conceptual models of diversity, for example, rely on a theoretical foundation (in particular developmental models proposed by Erickson, Piaget, and Ruble) that does not appraise its epistemological assumptions. For example, Gurin indicates that as a consequence of "structural diversity" students are "better able" to "appreciate the common values and integrative forces that harness differences in pursuit of the common good" p. 2) (Expert testimony, 1999, para. 5). The belief in a "common good" and "common values" and the desire to engage in "integrative" behaviors are liberal values not necessarily compatible with the objectives of multiculturalism (Martínez Alemán, 2001). It's not made clear whether the "deeper, more complex" thinking that Gurin attributes to diversity (structural, classroom, and interactional) is any more or less scripted by the epistemological traditions that perpetuate an uncritical view of race. Diversity, in this way, may present students with a "complex" view of race and ethnicity, but its complexity may be uncritical. For instance, education students may be presented with African-American and white-Anglo-American views on access and yet not engage in an analysis and critique of anti-relational and a-historic liberal concepts of "equality" and "meritocracy" that continue to inform affirmative action debates and policies. In other words, research like Gurin's (1999) leaves the *epistemological* assumptions of liberal education, pluralism, diversity and (even) democracy unchallenged.

In contrast, in Hurtado, Milem, Clayton-Pedersen, and Allen (1998) we encounter language that suggests that such a challenge is warranted. Hurtado, Milem, Clayton-Pedersen, and Allen (1998) warn that fundamental institutional changes are necessary if campus racial and ethnic climate is to change. These changes begin with a communication of how diversity is central to the institution's educational mission and requires institutional self-assessment, a conceptual modification that we take as an invitation to epistemologically unpack the mission of undergraduate liberal education and the claims made by racial and ethnic identity.

A second and equally important focus of the research literature on the current state of liberal education points out faculty and institutional resistance to change. Throughout higher education, institutional resistance to change is an obstacle to reform and re-examination. Often within the small liberal arts college, the resistance is even stronger as "it is accepted that the majority of faculty and administration in small schools have a desire to preserve many of the characteristics which made them unique among other institutions of higher education" (Bonvillian & Murphy, 1996, p. 15). As one president of small liberal arts college stated, "[c]hange is difficult, everyone in the organization recognized that change was needed to survive, yet the resistance was staggering. The common cry was that change is fine as long as it doesn't affect me" (Bonvillian & Murphy, 1996, p.167). Additionally, faculty members often guard the curriculum against change, making discussions about and taking actions on multicultural transformation difficult. As Bard College President Leon Botstein (1996) states, "The primary difficulty, of course, is getting faculty to talk openly and candidly about such issues. It is even more difficult to get them to agree that something needs to be done"(p. 60). Clearly, for small liberal arts colleges and their faculty, the necessity of change, in any form, can pose the simple and most difficult challenge.

Below we explain our qualitative examination of this contradiction as it relates to the mission of one liberal arts college and its desire to attain a multicultural community. Though we recognize that liberal education historically defined the undergraduate curriculum of universities in the United States (Brubacher & Rudy, 1997), the university is not our interest here. Rather, we seek to engage in a qualitative analysis of a single institutional expression of liberal education that is unencumbered by graduate studies, research centers, professional schools, and other "multiversity" functions that shift institutional attention away from undergraduate liberal education.

## *Methodology*

The first step in the process of our examination of liberal education, multiculturalism, and community was to identify institutions for possible selection by engaging in purposeful sampling. Small liberal arts institutions were selected as the institutions to be studied if their history, missions, and founding reflected a thorough and continued dedication to the ideals of liberal education. Additionally, through purposeful sampling, elite liberal arts colleges were chosen with the understanding that they would serve as information-rich cases with the potential to elicit "a great deal about issues of central importance to the purpose of the research" (Patton, 1990, p. 169). These elite institutions were highlighted because their reputation and stature have allowed them to be uniquely steadfast to upholding a true liberal education, with little intrusion of market demands for pre-professional and practical learning outcomes.

Beginning with the *U.S. News and World Report* ranking of the top 25 liberal arts colleges, and verified with a highly or most selective admissions process designation as noted in *America's Best Colleges* (1999), *Peterson's Four Year Colleges* (1999), and *Barron's Profiles of American Colleges* (1998), a list of elite small liberal arts institutions was assembled. All schools on this list met the criteria of an institutional student population of under 2500 and as a uniform categorization under the new Carnegie classification system of "BA LA" (Baccalaureate Liberal Arts Colleges) or those institutions that are "primarily undergraduate colleges with major emphasis on baccalaureate degree programs" (Basinger, 2000, p. A35).

From this list of 25 elite small liberal arts institutions, institutions were eliminated from the potential sample pool as elimination criteria were met. In each of these cases, an institution was discarded because some characteristic altered either the institution's understanding of liberal education or its approach to multiculturalism. For example, institutions with a religious affiliation that historically addressed social justice were discarded. Similarly, institutions established with a founding mission addressing pluralism were eliminated. Ultimately, the selection list was meant to explore institutions that must grapple with the challenge of multiculturalism within a traditional liberal education framework.

Each of these possible institutions was then further scrutinized with an examination of the information provided on its web site. This examination included a review of each institution's stated mission, history, institutional outlook, as well as its curricular offerings and co-curricular opportunities. If nowhere in the web site reference was made to multiculturalism or diversity, that college was eliminated. Additionally, the listing of two or more "professional" majors deemed the discarding of a given institution. With the remaining institutions, geographic location, co-educational status, and minority student enrollment were considered as conditions important to secure "typical case" status in our purposeful sample (Patton, 1990, p. 173). Finally, the guiding selection criterion that determined the final four colleges chosen was that each college placed the ideals of liberal education at the center of its self-image and its mission. Four institutions were ultimately selected through this process of purposeful sampling.

The next step in our examination was to complete a content analysis of public documents and archival materials from each institution. This analysis was conducted using codes based on a framework of "Deweyan multiculturalism," a paradigm developed by Martínez Alemán (2001) as well as a few additional inductive codes that surfaced in the initial review of the materials (Appendix 1). The findings of the content analysis (Martínez Alemán & Salkever, 2001) provided us with the foundation for this investigation, an investigation that would use semistructured interviews as its main data source.

Originating with the content analysis data, a list of potential subject areas was developed to inform the interview protocol. From these subject areas, specific questions emerged. We reviewed the interview protocol taking into account "ordering, phrasing, and level of language" (Berg, 1998, p. 65). This review process produced four revisions of the protocol. To ensure the strongest protocol, a team of four researchers independently reviewed the questions for clarity, coherence, and relevance, ultimately coming to consensus on the final version of the interview protocol. As a result of this rigorous approach, a targeted, comprehensive interview protocol was created to elicit the most essential data from the interviews (ee Appendices 2 and 3).

Intensity sampling was utilized to identify a case (one institution) that served as an "excellent example" but was not necessarily an unusual case (Patton, 1990, p. 171). Working from the conclusions uncovered in the prior content analysis (Martínez Alemán & Salkever, 2001), a single college was selected for a number of reasons. First, Hanson College (a pseudonym) is explicit in its dedication to liberal education while recognizing the importance of multiculturalism. In its mission Hanson claims a devotion to liberal education, recognizing knowledge for knowledge's sake and the process of learning as the essential journey in education. It also puts forth a "traditional curriculum", yet one that has no core with diversity or multicultural distribution or general education requirements. In its educational objectives Hanson purports the development of students in broadening their cultural breadth and literacy and their sense of social responsibility.

A second reason for the selection of Hanson is its involvement with diversity initiatives and projects. Hanson has been involved in Ford Foundation, Lilly and AAC&U initiatives on diversity as well as its own self-study of diversity. The extended and focused commitment to diversity initiatives suggested that Hanson recognized diversity as an important issue and had begun to consider and take action to address issues of diversity on its campus. Finally, by using "prior information and considerable judgment" (Patton, 1990, p. 172) which arose from the findings in the content analysis, Hanson College was identified as the institution in which to conduct interviews and further research.[4]

At Hanson, individuals were identified to serve as participants in the study. Our intention was to interview faculty, staff, students and key administrators including the dean of the faculty and the president of the college. Through purposeful random sampling (Patton, p. 180) 48 individuals were approached through both letter and e-mail that provided details and asked for participation in the project. Faculty were selected across disciplinary divisions and academic rank. No faculty employed by the college for less than three years was invited to participate. Students were selected from a pool of those actively involved in the extracurriculum, especially in student government. These students were judged to have active involvement with the issues central to the study or who were "information rich cases" (Patton, 1990, p. 171). Consequently, no first year students were asked to participate. Our sampling process did purposefully attend to the racial, ethnic, and gender composition across participant groups (Taylor & Bogden, 1998, p. 93).

An introductory letter described the project, emphasized confidentiality, informed of compatibility with Human Subjects requirements, and asked for an on-site interview to be established. Through this correspondence 28 participants agreed to be interviewed during the six-day on-site visit. The faculty, staff, and administrative interviews were all one-on-one, and the student interviews were conducted one-on-one or in pairs. Thirty-four (34) hours of interview transcriptions were prepared for import into the qualitative package HyperRESEARCH.

All the sources were then scrutinized for coding. The coding framework began with the codes developed for the content analysis (Martínez Alemán & Salkever, 2001) (Appendix 1). These codes were then placed in a 5-point Likert scale, where a one (1) represented poor evidence of the code and a five (5) represented a high level of complex and thoughtful evidence of the code. By utilizing this Likert scale, we were able to denote levels of strength and weakness of both the individual's understanding of institutional action around multiculturalism, liberal education, and community, and their own practices and views on these issues. Additionally, the option of an "emergent" code (E) was added to allow for ideas judged important by the researchers that did not fit into the coding schema.[5] Once coding was complete, we analyzed this data for central themes and emergent ideas. This analysis produced results that fell into one of four broad and interconnected categories.

### *Findings*

Themes emerged as a consequence of the analysis of participant interviews and have been assigned to the following categories: (a) difference communicated and understood as educational (b) enumerative diversity (c) breadth and (d) relational learning.

The analysis of the data that comprise these categories suggests that this particular liberal arts college struggles to attain its desired communal end in part as a consequence of the incoherence between its liberal educational mission and its multicultural goals. The data collected from the interviews and analyzed through HyperRESEARCH lead us to believe that the efforts made to achieve multicultural community by Hanson College administrators, faculty, and students will continue to be stymied by actions and initiatives that are guided by liberal educational principles. These principles, generally understood as the privileging of reason, the primacy of the individual, and an internalization of Enlightenment ideas about character and moral good, ultimately appear to prove inadequate for the institution's multicultural aims. In fact, the use of liberal educational principles is one institutional condition that appears to thwart both multicultural curricular and programmatic change at the college.

Below we discuss each category and conclude with a discussion of the implications for the institution that their data suggest.

#### *Difference Communicated and Understood as Educational*

Difference communicated and understood as educational combined three main concepts and codes that all held the common thread that difference and dissimilarity is an important educational factor and tool that serves to benefit all involved in the teaching and learning process. It should be recognized and communicated by faculty as invaluable and essential in the educational endeavor. The specific codes that elicited this theme were: education that is dependent on dissimilar others is necessary for learning about oneself for the purposes of self-realization; the college must foster effective communication between dissimilar persons; and the college provides students with the opportunity to think critically about the experiential data (information about and evidence of lived experiences) supplied by others.

Difference is not generally spoken of as an academic or epistemological issue at Hanson College. Instead it is expected by the faculty to be addressed through student-to-student interactions within the extra-curriculum or "informal interactional diversity" (Gurin, 1999). Faculty often talked about the pedagogical changes that diversity and difference can bring to their classroom, but few faculty spoke about the educational value of "difference" nor of making use of it as a communicative means to learning. One faculty member noted of fellow faculty members,

> They are not thinking in terms of the ways in which bringing in people with different backgrounds will affect the curriculum and have to affect the curriculum. (Female Junior Professor of Color)

According to most faculty interviewed, communication of and education through difference rests in the hands of the students, or more to the point, is not the business of the "academic" curriculum. As one faculty member put it,

> I think a college can be part of a sense of something to a student without it ever going through the academic curriculum_[education through difference] doesn't happen in classrooms. It happens in the living rooms. (White Male Senior Professor)

As this professor says, difference educates in the extra-curriculum. Many professors interviewed believed that learning as a consequence of difference was the purview of the extra-curriculum. Believing difference as inconsequential for academic or disciplinary knowledge matters, faculty often spoke of the educational value of difference as an affective or developmental concern outside their scholarly ken. For example, one science faculty remarked that in the "exploration of ideas and the nature of science" little can be affected by difference. In the sciences, he noted, "[He's] not sure that the Asian experience brings anything physically a lot different than the African-American experiences." Thus, by attempting to ignore the epistemological factor of difference in learning, the faculty demonstrates that

> they haven't bought into one idea about what diversity is and how we go about it—and how you sit with the discomfort of it in the learning process. (White Female Administrator)

Consequently, what we assume happens at Hanson is that though faculty recognize that racial and ethnic difference in the classroom will affect pedagogy, most did not talk about such difference as having an epistemological character. Difference was often understood by most of the faculty interviewed as something to be handled by changes in the inclusion of certain texts or teaching strategies most often characterized as "cooperative learning or "group learning."

For example, one history professor spoke about his use of "autobiographical reminiscences" in his comparative course, a pedagogical move he viewed important because it allowed "the person from the past to represent his or her experience from his own point of view." He viewed these narratives as a way to "give voice to a person in different circumstances" and characterized them as descriptive material that though important, was valuable because no "formal work" on these populations existed. With the inclusion of first person narratives, this faculty member indicates that difference and experiential difference brings certain information acceptable for inquiry. However, he was clear that these narratives do not bring to inquiry the "level of confidence" that "primary sources", i. e., texts by scholars of history, government documents, etc., inherently present. Difference as presented by first person point of view "reminiscences" is supplemental, not integral. Consequently, in this course difference is communicated as worthy of some scholarly note but epistemologically inferior. In the sciences, a restructuring of the curriculum to include workshop introductory courses aimed at increasing the number of African-American and Latino majors serves as a way to organize difference around learning styles and not epistemology. In sum, liberal inquiry was presumed by most of the faculty interviewed as the means to learning about and with difference, and not *through* difference.

### *Enumerative Diversity*

The enumerative theme refers to the statements made about maintaining or increasing the presence of diverse individuals in the student population and among the faculty. Enumerative diversity begins as a concept similar to "structural diversity" (Gurin, 1999; Hurtado, Milem, Clayton-Pedersen, & Allen, 1998), yet also takes into account individuals' and the institution's efforts to value and support the cultural identities in the attempt to maintain the "structural diversity." Yet ultimately, the underlying purpose of the attempts to value and support identity is to increase the diversity at the institution. The codes that combine to form the enumerative diversity theme include: the college culture values and supports students' cultural identities, the educational culture values and supports faculty cultural identities, the college claims enumerative diversity of students, and the college claims enumerative diversity of faculty.

Among Hanson College faculty and administrators there is a sense that improving student (and to a small extent faculty) racial and ethnic diversity will improve the institution and in turn its national ranking and reputation. There is a belief among most of the participants, especially among faculty members, that increased diversity will automatically make the campus more harmonious, or at least decrease campus tensions. Many faculty do not see increased student (and to some extent, faculty) diversity as a challenge to their communal aims largely because they trust uncritically in the virtues of liberal learning. This view reflects the adherence to traditional institutional norms that Hurtado, Milem, Clayton-Pedersen, & Allen (1998) assert keeps campus climate connected to traditions of exclusion. Most students and five faculty interviewed expressed a great deal of skepticism about the commitment to diversity efforts and about the fact that it is never articulated how improving multicultural representation will impact the educational process or the institution as a whole. One white male student commented that "there's a very abstract commitment to it by the administration here and the faculty. That's one of the largest criticisms of the school right now." A junior faculty of color echoed this sentiment by saying that "it is really easy to kind of pay lip service to the notion of diversity, but it is a lot harder to take action [like enforcing the college's affirmative action strategies for faculty hiring as outlined by the Affirmative Action Officer and Affirmative Action Committee[6]] on it." This observation supports Altbach's (1991) claim that "there has been considerable resistance by departments and programs to the rigorous enforcement of affirmative action guidelines" (p. 14).

Ironically, an institution whose liberal mission is to value individual identity does not seem to do so in the case of individual identities of difference. There was a surprising lack of articulation of the connection between low representation of diverse students and faculty and poor valuing of the epistemological significance of identities of difference. The inability to articulate this may be related to the absence of discussion among the faculty about the meaning of multiculturalism for learning.

> The faculty has never talked about what diversity is. I don't think the faculty has talked about what we mean by multiculturalism. I don't think the faculty has really discussed it in terms that a liberally educated individual has to have a lot of experiences with people who are different. (White Female Senior Professor)

Much that we heard from the interviews of students and faculty suggests that the college values "additive inclusion" or increased representation of racial and ethnic minorities (Martínez Alemán, 2001) but appears to ignore the possible substantive claims that these identities will make on their liberal educational mission. Faculty and administrators expressed support for initiatives to increase faculty and student diversity, but rarely did their support reflect anything other than a belief in the value of "pluralistic co-existence" (Bennett, 1995, p. 26). Only three faculty interviewed talked about increasing racial and ethnic diversity as an "integrated pluralism" that actively seeks to avoid assimilation and segregation (p. 26) and that is an imperative for critical higher learning.

A related theme on the desire to increase the number of racially and ethnically diverse members of the college community surfaced from the emergent codes. Many of those faculty and administrators interviewed expressed concern over the college's unsuccessful attempts to increase the racial and ethnic diversity of the faculty. They couched these concerns in a belief that the lack of progress is due to intentional or unintentional desire to "clone" existing faculty and administrative characteristics. The several individuals who used the term "cloning" to describe what they perceived to be assimilationist behavior on the part of individuals and assimilationist policies on the part of the institution (e. g., hiring white, Anglo-American faculty whose scholarship does not challenge the epistemology of liberal education) were the same few individuals who articulated the value of difference in learning. These faculty view their colleagues' behavior as reflective of an intellectual parochialism that arrests multicultural efforts. These faculty and administrators see institutional hiring practices as evidence of the desire to replicate existing ideologies. These same individuals perceive a pervasive ethic that demands assimilation into normative intellectual patterns by all members of the faculty. These are epistemological frameworks that largely adhere to the pursuit of value-free knowledge and objectivity and that are consequently in contradiction to an epistemology of difference. As Parker Palmer has noted, "Epistemologies become an ethic, and that every way of knowing becomes a way of living" and the objectivism that guides the ethic of higher education necessarily commits the academy to an "anticommunal" spirit (Palmer, 1987, pp. 22–23).

These comments were generally elicited by questions connecting increased racial and ethnic diversity to the liberal educational mission of the college. The following is exemplary of the comments made by these faculty and administrators:

> We communicate to people who want to come here as students or come here to work that you can come here as long as you're willing to be like us. So if people of color want to come and fit into a predominantly white institution, we're more than willing—more than happy to have them, but the model is never going to not be predominantly white.

She continued by saying,

> We just replicate ourselves and that's very much what I see happening. I still feel that the kinds of gestures that we're willing to make are just sort of symbolic. (White Female Administrator)

The intensity and the frequency of these comments were striking. They made up a substantial portion of those transcript segments that did not fall into the established coding scheme. When we examined this cluster of comments, what emerged was an ethic of community that rests on sameness rather than difference. This ethic will ultimately prove problematic for the institutional desire for multicultural community.

### *Breadth*

The theme of breadth represents the range of curricular, co-curricular and scholarly endeavors that somehow stretch the traditional definition of the college educational experience. By expanding curricular subject matter, including student interests in curricular and pedagogical considerations, encouraging unfamiliar and cultural experiences in the co-curriculum, and by developing support for scholarly pursuit of non-traditional subjects, the institution demonstrates a desire for and perhaps even dedication to broadening the concept of the liberal education experience. The codes that make up this theme are: curricular breadth extends beyond the traditional subject matter of liberal education; co-curricular breadth incorporates unfamiliar or unknown experiences; the college supports faculty scholarship of non-traditional subjects; the educational experience extends to experiential learning in multicultural environments; students engage in critical scrutiny of the curriculum; students' individual interest are positively acknowledged within the curriculum; and students' individual interests are positively engaged within the curriculum.

When asked to describe the central tenets of liberal education at Hanson College, faculty and students claimed curricular breadth as an important component. The breadth of the curriculum, though reasonably limited by the size of the faculty, is argued to be one of the necessary ingredients of liberal learning, enabling students to inquire across disciplines, improving their intellectual scope. However, curricular breadth at Hanson seems to be understood by these faculty and administrators within certain traditional limits. For example, keeping interdisciplinary programs as non-departmental programs makes them ineligible for the faculty hiring and funding privileges given to departments/majors effectively limiting the potential for improved curricular breadth. In keeping interdisciplinary knowledge within programs, Hanson follows a course similar to many other institutions (Marable, 2000).

Though one department has recently revised its offerings and requirements to reflect knowledge outside the traditional scope of the discipline (e.g., Western and European-American), there were no other reports of departments' substantive revisions and expansion of their curricula to include new disciplinary knowledge, especially critical scholarship on race and ethnicity. This was left to a few of the interdisciplinary minors and to study abroad programs, independent study options initiated by students, visiting faculty, and the extra-curriculum. Hanson faculty generally appear to leave the curricular study of race, gender, and ethnicity to a few interdisciplinary minors and to visiting faculty of color. As a student remarked,

> I think that the curriculum needs to be updated to reflect a commitment to multiculturalism or diversity. The classes are usually [one time course offerings]. They're usually taught by the visiting minority scholars. So that's not addressing the problem. (Female Student of Color)

Physical science faculty interviewed, for example, see no place for such scholarship in other than environmental studies (not viewed as a "traditional science"). Including "nontraditional" subject matter within the majors at Hanson was often viewed as a function of the limitations of faculty expertise and the small size of departments. Similarly, when students' individual interests could not be met within the curriculum or through independent study, these same limitations were cited. This lack of breadth together with the stability of the liberal curriculum appeared to be a source of intellectual disengagement on the part of students, this despite attempts at more student-centered pedagogy in some introductory "workshop" courses. If disengaged in the classroom, we can anticipate that students are unlikely to engage in critical scrutiny of the subject matter, that they will passively accept knowledge. In discussing the ability of the curriculum to meet students' interests and its connection to critical thinking, one professor commented,

> I think that students pretty much bought into what the school tells them is supposed to be interesting. They seem to be very willing to take the professor's word for it. Yet we are telling them to be challenging and critical thinkers. I just had a student come in here today. I asked him to rewrite a paper and he said, "Well, I understand everything you said, I can rewrite the paper." I said, "Well, wait a minute, this conference is for you to tell me if you think I misunderstood something or I gave you a comment that doesn't make sense." He says, "Oh no," he says, "I just pretty much do what professors tell me and I do it. You know and that's just fine with me." (White Female Junior Faculty)

Faculty and administrators claim that critical scrutiny is highly valued in liberal education, or perhaps more precisely, that it is liberal education that engenders rigorous inquiry. Though claimed as a central tenet of liberal education, many individuals alluded to the belief that critical scrutiny is rarely required, produced, or expected in the classroom. In professors' discussion of their classes, the highest level of scrutiny was rarely described, and there was great concern expressed about its absence.

> The thing that I noticed most is a change in the students' attitude towards

> their education. Where they feel, or seem to feel less that it is their job to get an education than it is more the faculty members job to *give* them an education. I am disappointed by that trend. (White Male Senior Professor)

This one example reflects a common sentiment among the faculty interviewed.

### *Relational Learning*

Finally, the theme of relational learning is based on the belief that good learning does not happen in a vacuum. The communication and exchange between students, particularly dissimilar students, is essential in college education. The process of connected intellectual growth and communicative learning is mutually beneficial to all students in its educative value. Student growth and development is furthered when student communication and exchange is enhanced by faculty-student communication and exchange. Ultimately, the relationships of students to students and students to faculty make valuable and essential contributions to the educational experience. The codes that make up the relational learning theme are: the college does not restrain communication between students; the college does not restrain communication between students and faculty; effective communication occurs and is dependent on the academic curriculum; students' intellectual and developmental growth is dependent on the growth of others; and education must be mutually beneficial for dissimilar persons.

There is much ambivalence on the part of the majority of participants as to the role others play in the learning process. Most faculty talked about learning from others only as pedagogical acts, such as cooperative or group learning and study, not as a sensibility about the role of others' experience and perspectives on the development of the intellect. As a white male senior professor noted, "More faculty members have seen evidence and buy into the evidence that good learning comes from collective enterprises." The students' perspective on this phenomenon is reflected in the comment below:

> Faculty members might be concerned about the growth of an individual, and I am not sure how much they consider that growth in relationship to the growth of others. My best guess is that that doesn't occur. (Male Student of Color)

Few faculty understood students' intellectual development to be dependent on the growth of other students, particularly dissimilar students. Taken one step further, only two faculty interviewed acknowledged the mutual benefit of diverse students in the learning process.

A senior professor responded in the following way when asked to comment on the importance of difference for mutual learning:

> I think it is incumbent upon us and upon places like this, liberal arts colleges like Hanson, to consider the importance of diversity as integral to their existence and their purpose and not as an admissions brochure. (White Male Senior Professor)

His junior colleague spoke of her desire to make students aware of the educational benefit of difference,

> [I want to say to students] that this is a wonderful institution, but I want you to understand you are being shortchanged because you don't have more people of color in here and because you don't have any diversity in the classroom. If you had those things, that would add a whole other dimension to your education. (Female Junior Professor of Color)

Echoing Palmer's (1987) observation that learning is a communal act that demands "many eyes and ears, many observations and experiences" (p. 25), this junior professor of color's commentary continued by explaining that learning required a community based on difference. Though these two faculty members recognized and were able to articulate the importance of difference for the education of all students, learning in the classroom from dissimilar others was rarely talked about by faculty and largely relegated to the extra-curriculum. Differences in lived experience as a source for intellectual growth was often not talked about as an intellectual or pedagogical tool. These two faculty were the exception in the sample interviewed.

### *Implications*

As in the case of Grant and Riesman's (1978) account of reform and experiment in America's colleges, what we have put forth here about Hanson College is a "descriptive and analytical" (p. 2) account of institutional participants' reflections on the relationship between the liberal educational mission, multiculturalism, and community. From the analysis of the interview narratives, we are able to ascertain that members of Hanson College will continue to struggle with their communal aims if their liberal educational mission remains grounded in an epistemology that renders difference as an object of study and not as a means of thinking and learning. Palmer's (1987) observation that until a college's epistemology is relational in nature—in this case, anti-liberal, the college "will make little progress on communal agendas" (p. 24) resonates here and has many implications for the health and success of the institution and its personnel. Below, we outline some of these implications.

### *Relationship Between Liberal Education and Multiculturalism Goes Unexamined*

The want of an institution-wide discussion and development of multiculturalism's relevance to liberal education appears to signal problems for the communal future of Hanson College. Though a faculty committee recently developed an "essential values" statement, no purposeful deliberation was dedicated to the critical review of the correspondence between liberal educational principles and multiculturalism. The committee of faculty assumed a shared understanding of each, and though the "essential values" were implicitly supported by faculty at a retreat, few faculty spoke of a need to critically analyze the liberal mission in relation to its diversity goals. Perhaps an earnest faculty discussion about the logic of contradiction between liberal educational aims and multiculturalism in a less charged and politicized venue could ignite the analysis. Only three faculty interviewed expressed this concern, suggesting that as long as the ideological mismatch was resident, the college's progress would be handicapped.

### *The Purpose of Formal Diversity Projects*

Hanson College has been involved in several formal diversity projects throughout the years, each aimed at improving the multicultural character of liberal education. For example, projects funded by the Ford Foundation and the Association of American Colleges and Universities have been implemented and have brought to the college opportunities for faculty development and curricular and pedagogical change.[7] Though it is evident that these initiatives are designed to enable institutional change, it is not clear that they direct epistemological change. Funded initiatives like the special workshop science courses designed to increase minority student participation and improve success in the sciences and faculty development seminars focusing on multiculturalism often mask the underlying need for institutional commitment to substantive epistemological change. The conflicting and contradictory nature of the college's ideological core and its desire for diversity are not addressed by these projects. Without a full consideration of the implications of that change on the institution's liberal identity and mission, these initiatives will have limited impact and value. It should be noted that the researchers found few assessment documents on these programs. Typically, assessments of the impact of these projects were memoranda submitted by faculty committees charged with implementing the conditions of the grants, or general mention of the goals of the project. These documents make no mention of the epistemological incompatibility between the college's liberal mission and the goal of multicultural community. If anything, compatibility appeared presumed.

In sum, Hanson's formal diversity projects have been palliative in nature. Often serving to temporarily calm students' or a few faculty's demand for multicultural community, these ventures have not rooted out the source of discomfort, the contradictory epistemological relationship between liberal education and multicultural community. Instead, these projects have simply moderated the intensity of the incompatibility.

### *Reputation and Institutional Goals*

The institution is engaged in self-examination as it attempts to raise its ranking and improve its reputation among selective liberal arts colleges. Together with the board of directors, Hanson College's new president has constructed an institutional plan to improve the college on these two counts. The plan has included targeted funding, external comparative site visits by senior faculty, and a comprehensive plan for expansion and renovation.

This plan, along with other previously funded projects, fails to address the incompatibility of liberal education and multiculturalism. While other liberal arts colleges have reconciled elements of this compatibility by expanding the curriculum and broadening disciplinary scholarship (Martínez Alemán & Salkever, 2001), Hanson College continues to replicate the existing curricular model, consequently "cloning" its faculty. In doing so, Hanson engages in an assimilationist future.

## *Limitations*

Part of a larger research endeavor designed to assess the ideal of community and the challenges of multiculturalism on liberal arts campuses, this particular qualitative investigation served to highlight the importance of the need for further study on the congruence between the mission of liberal education and a college's pluralistic aims.

Here Hanson College serves as an example of a liberal arts college that stays true to its unexamined traditional liberal mission while attempting to form pluralistic community. As a single institution case, this study reflects only the perceptions of the institutional participants and our evaluation of those perceptions. Clearly, to generalize from this would be inappropriate and would compromise the integrity of qualitative research. This limitation, however, should not obscure the study's intent and usefulness. Our intention is to bring to higher education researchers and practitioners a typical case that can then be related to the larger postsecondary context. In other words, the study of Hanson College relates to campus initiatives that seek to address the impact of racial and ethnic heterogeneity among students (and faculty). It is in identifying relation that an institution's epistemological and cultural resemblance and kinship with Hanson College can be functional. The case of Hanson College can help illustrate a fundamental problem likely to be encountered by liberal arts colleges desiring multicultural community. We hope that through this single unique case, researchers and practitioners are able to gain valuable insight.

Further, we are also left with questions about the connection of pedagogy to issues central to this inquiry. Palmer (1987) rightly argues that institutions "cannot derive communal ways of teaching and learning from an essentially anticommunal mode of knowing. The pedagogy falls apart if the epistemology isn't there to support and sustain it" (p. 25). Data from recent scholarship suggest support for this contention (Lynch, 1997; Maher & Tetreault, 1994; Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1996; Ropers-Huilman, 1998). If multiculturalism is to be the means to community on campus (Martínez Alemán, 2001), then we are obliged to investigate the pedagogical practices and objectives of liberal education, and in particular at Hanson College. The strength of the interview data on the communication of difference as a pedagogical tool (especially from Women's Studies and African-American Studies faculty) suggests to us that how Hanson College faculty understand and employ difference within each discipline is an important element in the college's ability to effectively communicate and engender multicultural community.

## *Conclusions*

The ideal of community on American's liberal arts college campuses is a concept that was reinforced by actions and policies designed to resist societal forces that would challenge its liberal identity (Wong, 1996). At the end of the twentieth century and the beginning of the twenty-first century, the American liberal arts college finds itself once again poised to react to social realities that challenge its liberal communal aims. Increased ethnic, racial, and gender faculty and student diversity and critical scholarship have threatened the cultural insularity and coherence of the American college but, as in the case of Hanson College, these forces have yet to actually de-center its liberal core. Even with the projected 21 percent increase in nonwhite college eligible 18–24-year-olds by the year 2005 (Frase, 1995), it is our thinking that increasing the number of ethnic and racial minority students and faculty *this* liberal arts college will not ultimately de-center the college's assimilationist views of community life. Instead, we assert, that before a participatory and communicative multicultural community can be formed and before the inevitable racial and ethnic demographic change will matter, the epistemological foundation of Hanson College must be examined, questioned, and finally, reconsidered.

Liberal education has never been a static enterprise in America. Its faculties and campus administrators often enacted change to better its societal fit (Kimball, 1986). Are the intellectual claims based on experience that are today summoned and executed by students and faculty of color so different a challenge to the liberal educational college than say, the 19th-century utilitarian call for the promotion of the sciences (Kimball, 1986, p. 147) or the late 19th-century's and early 20th-century's liberal education of women (Solomon, 1985)? Given this investigation, we anticipate that indeed, experiential difference and its consequent knowledge claims do challenge liberal education in categorically different ways, most important of these is the belief that knowledge is impure, subjective, and uncertain. It is not yet clear to us whether the character of these challenges resonates with the charge that the infusion of liberal education with the scientific ideals of "impartiality, objectivity and moral neutrality" (Hollinger, 1996, p. 117) has made it more resistant to the contradictory claims of multiculturalism. Our review of the interviews with science faculty in this investigation leads us to suspect that an inquiry into the extent to which these scientific values (positivistic in nature) are applied formally or informally to the exercise of liberal education is warranted.

It is the objective of our research to continue to investigate the apparent contradiction of liberal education's ideal of community amidst an increasing experientially diverse membership. These examinations of the educative value of difference for the American college will seek to assess the potential for effective change, change that will revive its democratic character and equip the learner with the knowledge and skills by whose means he can come into empathetic realization, sympathetic understanding and cooperative association with individuals, occupations, and cultures different from one's own (Kallen, 1949, p. 182).

Our outlook for this project reflects the optimism emblematic of the Deweyan pragmatism upon which it is grounded. The social optimism that characterized John Dewey's work informs our work in that we, like other Deweyans, believe that

> the social function of American colleges is to help the students see that the national narrative around which their socialization has centered is an open-ended one. It is to tempt students to make themselves into people who can stand to their own pasts. (Rorty, 1996, p. 124)

As John Dewey believed that Ralph Waldo Emerson offered Americans the social hope that was the condition necessary for growth, we present this inquiry as an act of hope so "that the future [of college education] will be different and freer from the past" (Rorty, 1996, p. 120). We invite other researchers to explore the affirmative uses of Deweyan multiculturalism whether as a model for curricular assessment, as a model for faculty development initiatives, or as a model for the development of institutional policy.

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APPENDIX 1

Deweyan Multiculturalism Tenets and Coding Scheme[1]

| Themes/Categories | |
|---|---|
| Difference Communicated and Understood as Educational | |
| *Codes:* | Education that is dependent on dissimilar other(s) is necessary for learning about self or for self-realization |
| | The college must foster effective communication* between dissimilar persons |
| | The college provides students with the opportunity to think critically about the experiential data *(information about and evidence of lived experiences)* supplied by others in or outside the curriculum |
| Enumerative | |
| *Codes:* | The educational culture values and supports students' cultural identities |
| | The college claims enumerative diversity of students |
| | The college claims enumerative diversity of the faculty |
| | The educational culture values faculty cultural identities |
| Breadth | |
| *Codes:* | Curricular breadth extends beyond the traditional subject matter of liberal education |
| | Co-curricular breadth incorporates unfamiliar or unknown experiences |
| | The college supports faculty scholarship of non-traditional multicultural) subjects |
| | The educational experience extends to experiential learning in multicultural environments |
| | Students engage in critical scrutiny of the curriculum |
| | Students' individual interests are positively *acknowledged* within the curriculum |
| | Students' individual interests are positively *engaged* within the curriculum |
| Relational Learning | |
| *Codes:* | Education must be mutually beneficial for dissimilar persons, i.e., mutually educative |
| | Students' intellectual and developmental growth is dependent on the growth others |
| | The college does not restrain communication between students |
| | The college does not restrain communication between students and faculty |
| | Effective communication occurs and is dependent on the academic curriculum |
| Emergent Coding | |
| *Codes:* | The college does not restrain communication between faculty members |
| | The college supports faculty development on multicultural curriculum or pedagogy |
| | The college claims a connection between social justice and institutional mission |
| | Faculty members demonstrate resistance to multicultural initiatives and/or change |
| | The college community demonstrates resistance to multicultural initiatives and/or change |

NOTE: [1]These are the tenets that comprise "Deweyan multiculturalism," a paradigm developed by (Martínez Alemán, 2000) from which the codes were derived.

*The term "communication" is used here in pragmatic ways. Not merely the mechanical exchange of language, communication across the gap in knowledge the result of shared experiences, changes participants' consequent experiences.

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APPENDIX 2

Faculty, Student and Administrator Interview Protocol

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The interviews of faculty students and administrators each consisted of 27 questions. The interview protocol focused on the following subject areas: the relationship liberal education and multiculturalism, the relationship between curriculum and multiculturalism, the relationship between pedagogy, consciousness and self-realization and multiculturalism. Below is a sampling of specific questions.

Research Project's Specifics

This study is examining the role of multiculturalism in liberal arts colleges. Can you describe and reflect upon the foundation of a sound liberal arts education?

What do you think is the most important tenet/principles of a liberal arts education? Why do you think that this is so important?

Discuss the curricular specifics of the definition in relation to the college.

How are students being asked to scrutinize the experiences of others unlike them?

How are students asked to students engage in critical scrutiny of subject matter/curriculum?

How does the college give faculty the opportunity to engage in the development of courses and pedagogy that involve multicultural matters?

Consciousness and self-realization

1. Does the liberal educational mission of the college include the belief that the students' intellectual the students' intellectual and developmental growth is dependent on the growth other students?
2. How is the presence of ethnically and racially diverse students beneficial for liberal learning? How would the increase of racially and ethnically diverse students and faculty affect liberal learning at the college?

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## *Notes*

[1]Scholars like Philosopher Martha Nussbaum in *Cultivating Humanity: A Classical Defense of Reform in Liberal Education* (1997) championed liberal education arguing that the analytical rigor embedded in its classical heritage is precisely what will engender pluralistic community. Nussbaum's assertion that liberal education can harness and make sense of experiential diversity echoed the American Academy of Arts and Sciences earlier reaffirmation of "the traditional values of liberal education" (Farnham & Yarmolinsky, 1996, p. 157).

[2]A correlate to this point is the inclusion of women in the curriculum. The inclusion of women in literature courses, for example, does not rule out sexist discourse. The knowledge about women presented in texts or by the professor may well be knowledge that does not unsettle the stereotypic Western view of woman as man's lessor.

[3]The term "sociality" is used to describe the human tendency to associate or form groups. John Dewey's model for sociality is democracy borne of communication, cooperative inquiry, and the "full and free" expression of individuality.

[4]Hanson College is a private, independent liberal arts college that enrolls approximately 1300 students, 12% of whom are students of color. It is a residential college in a predominantly white rural county.

[5]Once the coding framework was established, we jointly coded one interview of substantial length to test the level of coherence and sensibility of the coding and a common understanding of the meaning of these complex codes. Through the coding of this first transcription, the codes were found to be logical and sound, and the remainder of the transcriptions was then coded. The majority of this coding was conducted as simultane-

ous coding through a process of negotiation and discussion. This collaborative approach allowed us to consider the dialogue and the coding from multiple perspectives and to recognize areas of non-consensus that were then flagged for further discussion. Some interviews were coded separately, on a single researcher level. Separate coding served as a checking device and was conducted on approximately one quarter of the interviews. Through separate coding, an attempt was made to ensure consistency and inter-researcher reliability throughout the coding process. An external researcher completed the final check in the coding process by coding a segment of the transcripts. This researcher's codes and our codes were then compared for consistency. Through this three-tiered coding approach, the interviews were reviewed in a manner designed to produce consistent, reliable coding.

We then analyzed the materials by coding on both a line-by-line and a broader overview basis to highlight the depth and complexity of multiculturalism in the institution's self-understanding and vision of liberal arts and community. Words, phrases, sentences, paragraphs, and concepts were utilized as the units of analysis. Multiple coding was completed if a specific response touched on the idea behind more than one code. As the transcripts were coded, annotation was used to provide supplemental thoughts or information that allowed the coding rationale to be more explicit and accessible. Through this coding and annotating method the researchers were able to abide by the central guidelines of content analysis (Strauss, 1987). At points of disagreement, when interview statements did not fit into the coding framework, the "emergent" code (E) was used. The final step in the coding process was to review the emergent codes in order to place them into the coding framework or provide them with a new code that emerged through the review of the material. As these emergent statements were reviewed, we created new codes that pertained specifically to faculty and multiculturalism in the liberal arts community (see Appendix 1). These codes were also placed on the 5-point Likert scale and were differentiated between an individual action or statement and an action taken by the institution. The appropriate emergent codes were then re-coded into this framework. In the case of emergent codes that did not fit into either the original code list or those that emerged from the content analysis, and consensus could not be reached, these codes were not included in this analysis.

[6] Documents provided by the Affirmative Action Officer confirmed these claims.

[7] These projects include ACM's Ford Foundation funded Faculty Development Multicultural Education Summer Seminars, Ford Foundation Conference on Campus Diversity, and the AAC&U's Teaching Cultural Enrichment as General Education.

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# Book Review

*Academic Pathfinders: Knowledge Creation and Feminist Scholarship,* by Patricia J. Gumport. Westport, CT: Greenwood Press, 2002. 198 pp. $64.95.

SUSAN B. TWOMBLY, University of Kansas

It is hard to argue that feminist scholarship has been anything but a huge success story. As Patricia Gumport argues in *Academic Pathfinders,* despite recent critiques of feminist scholarship and disagreements within the field,"feminist scholarship . . . has generated a degree of intellectual disruption, interpersonal conflict, and curricular transformation" (p. 154) that other area studies programs have yet to achieve.

The central theme of *Academic Pathfinders* is that the creation of new knowledge is a product of biography, disciplinary norms and structures, organizational conditions, and historical circumstances. To show how new knowledge areas develop and become legitimized, Gumport explores the rise of feminist scholarship through the experiences of the women she labels the "Pathfinders." Pathfinders began graduate school in the mid-1960s and were active scholars in the 1970s and early 1980s. She draws on in-depth interviews with 35 Pathfinders to show how feminist scholarship took different paths in three disciplines: history, sociology, and philosophy. She also discusses new options Pathfinders created for both the Forerunners, those women in the academy when the Pathfinders became graduate students, and the Pathtakers, those who followed the Pathfinders in graduate school. The options included following or not the agenda started by the Pathfinders.

The conceptual approach Gumport develops in Chapter 1, although based on somewhat dated literature from the 70s and early 80s, is a strength of the book. Drawing on organizational theory, sociology of culture, and sociology of science, Gumport forges an analytic perspective that "emphasizes that the relationship between emerging knowledge and its respective historical conditions is mediated by individuals' life experiences and by the prevailing practices within established institutional settings" (p. 2). Simply put, knowledge creation involves much more than idea work alone.

This analytic perspective is played out in Chapter 4, where Gumport lays out the more general conditions that fostered "breakthroughs" for emerging feminist scholars. These conditions, such as a critical mass of women scholars, financial aid, disciplinary openings, and supportive conditions on campus, allowed women to translate their political concerns into scholarly work. However, it is through the specific focus on knowledge development in the disciplines of history, sociology, and philosophy in Chapter 5 that the reader most clearly sees how biography, history, discipline, and organization interact to produce different forms of new knowledge. For example, in the case of history, women's history coincided with the emergence of the new field of social history and became accepted as a sub-field within the discipline. Although facing some obstacles, pathfinder historians found it relatively easy to find relevant historical questions that contributed to content knowledge within their field. Because gender was already an accepted analytical concept in sociology, the sociologist pathfinders, aided by critical theory and leftist critiques, made their contributions by reconceptualizing theory in an attempt to explain gender-based inequalities but not by fundamentally changing the discipline or creating specific sub-field as in history. According to Gumport's analysis, the very basic premises of philosophy—universalism, the pursuit of truth through abstract reasoning, and the primacy of analytic philosophy with its emphasis on detached inquiry—have made it more difficult for feminists to define research questions deemed legitimate. As a result, "There were neither natural intellectual openings nor rewards for challenging the dominant adversarial method" (p. 130). Pathfinder philosophers faced the choice of working in traditional philosophy, challenging the method of the discipline or working outside it.

In the concluding chapter, Gumport extends the discussion to focus on how the conditions for knowledge creation in general are changing. These include the political environment external and internal to a field, the changing organizational conditions within universities, and changes in the organization of academic knowledge. For example, she argues that "an unprecedented blending of fiscal and academic interests has reshaped the academic landscape of universities and changed the conditions in which faculty and graduate students engage in knowledge work" (p. 158). Where resources might once have allowed adding courses, emerging fields now find themselves pitted against other, more revenue-generating, areas. How then, she asks can areas of new knowledge gain resources? What conditions foster new areas of knowledge, especially those that are multidisciplinary? Because knowledge is arguably the core work of the university, the processes identified and questions raised by Gumport are critical ones for administrators and faculty alike.

Potential readers who worry that *Academic Pathfinders* is a rehash of old information about stages of feminist knowledge development (for example, Andersen, 1987; Schuster & VanDyne, 1984; Tetreault, 1985) can rest assured that it is not. In fact, Gumport's analysis suggests that these earlier works overlooked important organizational variables in assuming that feminist knowledge would develop in all disciplines more or less along the same path and through the same stages. Because *Academic Pathfinders* is about the conditions under which new knowledge emerges and develops as much as it is about feminist scholarship, the book should appeal to sociologists of knowledge and science as well as to feminist scholars and higher education specialists with an interest in organizational theory and curriculum.

The research for this book began as Gumport's dissertation published in 1987, so it is reasonable to assume the data were collected in the late 1980s. Because it is an interview study, but not an oral history, much of the book is written in the present tense, which creates an odd problem. Even when the past tense was used, it was difficult to figure out whether the author was referring to 2001 or to 1987. This "tense" problem is particularly notable in Chapter 5, dealing with scholarship in the three disciplines. For example, when Gumport writes "Feminist research has not resulted in a fundamental, definitive rethinking of sociological inquiry" (p. 113), is she writing about 1987 or is she drawing a conclusion based on a current assessment? Have the initial structures and responses to feminist scholars in each discipline held, changed, or even disintegrated? She never really does bring us up to date on these three disciplines.

Gumport is sympathetic (but not excessively so) to the Pathfinders, as well she should be. Despite the criticisms that feminist scholarship has undergone—it is too white, middle class, etc.—it is important to remember that without the courageous work of the Pathfinders, there would be nothing with which to disagree. By looking back to recount the emergence of feminist scholarship, she has enlightened—and warned—us all about the conditions favoring or not the creation of new knowledge areas in the future.

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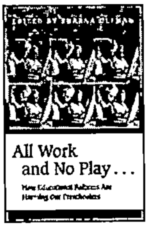

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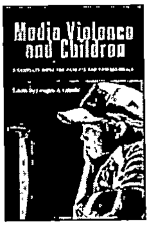

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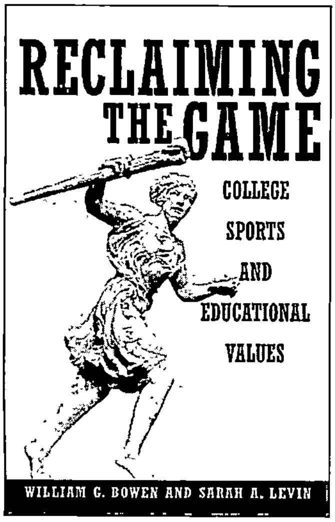

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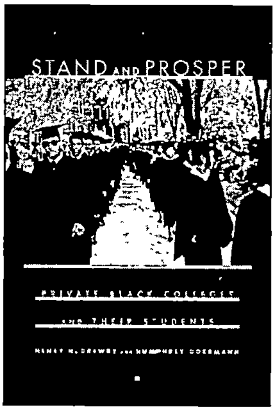

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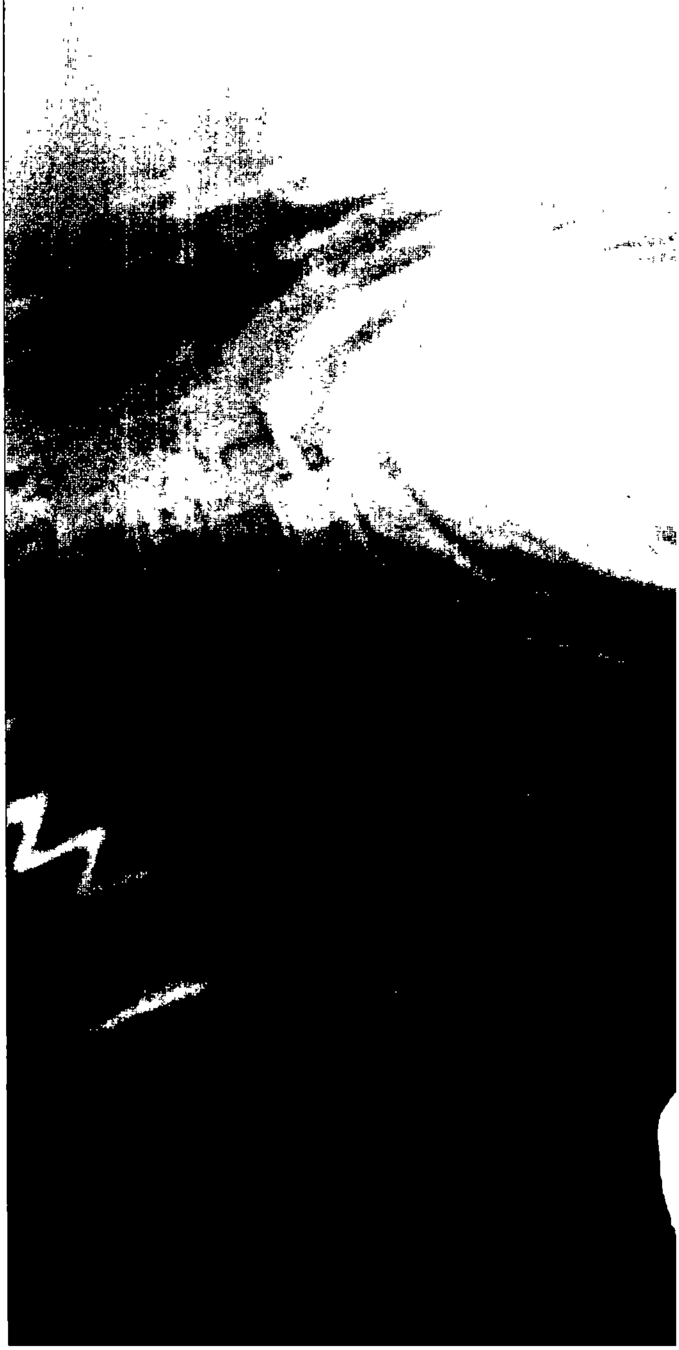

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# THE JOURNAL OF HIGHER EDUCATION

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# The Journal of Higher Education

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**Diversity's Missing Minority: Asian Pacific American Undergraduates' Attitudes Toward Affirmative Action**
This study examines the impact of personal belief systems and the college experience on Asian Pacific American undergraduates' views of affirmative action in higher education. Results indicate that APA students' social interactions and perceptions, as well as their dominant ideology beliefs and racial/ethnic identification, influence their affirmative action views.

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**Rethinking the "Nontraditional" Student from a Historical Perspective: State Normal Schools in the Late Nineteenth and Early Twentieth Centuries**
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Karen Kurotsuchi Inkelas

# Diversity's Missing Minority: Asian Pacific American Undergraduates' Attitudes Toward Affirmative Action

The leaders of many colleges and universities across the United States have asserted that racial/ethnic diversity and multiculturalism are central to their teaching and learning missions (Association of American Universities, 1997), based in large part upon research that has linked diverse campus climates and educational outcomes like students' intellectual, moral, and civic development (Hurtado, Milem, Clayton-Pederson, & Allen, 1999; Smith & Associates, 1997). Given the significance of these educational outcomes, it is important to understand the facets that shape institutional climates toward diversity. Peterson and Spencer (1990) have described campus climates as "current perceptions, attitudes, and expectations that define the institution and its members" (qtd. in Hurtado et al., 1999, p. iii). Thus, institutional climates toward diversity focus upon the views and experiences of students, faculty, and staff toward their campuses' racial environments. In the past few decades, students' perceptions concerning affirmative action have shaped the campus racial climate at many institutions, particularly those with selective admissions policies (Chang, Witt, Jones, & Hakuta, 1999). Accordingly, student attitudes toward affirmative action provide a lens into the college racial climate.

Despite considerable research on college students' attitudes toward affirmative action and related racial issues (for summaries of research, see

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Smith & Associates, 1997; Pascarella & Terenzini, 1991), the views of Asian Pacific Americans are seldom studied in-depth and often discussed only in comparison to findings regarding other racial/ethnic groups (Osajima, 1991; Yonezawa & Antonio, 1996). In fact, after a comprehensive review of literature on how different racial/ethnic groups perceive their campus environments differently, Hurtado et al. (1999) conclude with a recommendation that more research is needed to study the experiences of Asian Pacific Americans. Similarly, other scholars have advanced that Asian Pacific Americans are the "invisible" population in American higher education, or the "missing" minority in the collegiate racial discourse (e.g., Hune & Chan, 1997; Osajima, 1995). Therefore, in order to illuminate the racial views of Asian Pacific Americans and thereby expand our knowledge on the perspectives that shape campus racial climates, this study examines the affirmative action attitudes of Asian Pacific American college students and the personal characteristics and facets of the college experience that influence their beliefs.

### *Background and Significance of the Study*

Asian Pacific American college-student enrollment has skyrocketed in the past few decades, especially at some colleges and universities in states where affirmative action is the most hotly contested (Hune & Chan, 1997). Currently, APA students encompass between one-quarter and one-third of the enrollment at several of the nation's most competitive public and private institutions (*Chronicle of Higher Education*, 1998), despite the fact that Asian Pacific Americans comprise only 2–3% of the total American population (Humes & McKinnon, 1999). From 1976 to 1996, the number of Asian Americans in higher education increased by over 400% to over 823,000 in 1996 (*Chronicle of Higher Education*, 2001; Escueta & O'Brien, 1995). Moreover, it does not appear that this trend will diminish in the immediate future, given that Current Population Survey data reveals that Asian Pacific Americans are one of the fastest growing racial/ethnic groups in America and are more likely than any other racial/ethnic group to have attended at least four years of college by the age of 25 (Escueta & O'Brien, 1995; Humes & McKinnon, 1999).

Since Asian Pacific American enrollment will continue to expand in the 21st century, knowledge about the racial attitudes of APA students in campus racial discourses is of crucial importance for both research and institutional effectiveness. From a research standpoint, Smith (1989) cautions that studies involving diversity issues must not make generalizations across racial/ethnic groups until all groups' experiences and perceptions are corroborated. Thus, in light of the rise in APA college enrollment—especially in those states and institutions where affirmative action is at a critical juncture—diversity research must examine and not generalize Asian Pacific American students' perspectives. In addition, several studies have concluded that racial/ethnic diversity and campus racial climates are linked to facets in the college environment that improve student-learning outcomes (Astin, 1993; Gurin, 1999; Hurtado et al., 1999). Thus, if institutions wish to fulfill their core missions of teaching and learning, they cannot overlook the real complexity of their campus racial climates, which includes the views of Asian Pacific American students.

The rise in Asian Pacific American enrollment at several of the most competitive higher education institutions has met with its share of controversy. During the 1980s, APA college applications to many of the nation's elite colleges and universities were increasing at exponential rates, and many of these applicants possessed strong academic credentials (Peng, 1985; Takagi, 1992). Yet, Asian American acceptance rates at most of these schools remained static or even declined during this time period (Takagi, 1992). This disjuncture spurred some to suggest that these institutions were intentionally setting quotas, or limitations, on the number of Asian Americans they would accept. The charges were not entirely unfounded; both Brown University and the University of California at Berkeley admitted that their admissions practices were biased and made revisions to their procedures (U.S. Commission on Civil Rights, 1992).

For somewhat different reasons, members of the political left and right unified in opposition to the alleged quotas against Asian Americans. Advocates on the left were the first to investigate the questionable admissions practices and link them with a continued pattern of discrimination against Asian Americans, and minorities in general, in American society (see Takagi, 1992). Conservatives soon joined their liberal adversaries in denouncing the alleged quotas against Asian Americans in college admissions as "proof" that affirmative action was restricting Asian American admissions in order to accommodate quotas for underrepresented minority groups (e.g., D'Souza, 1991). With both sides of the political spectrum claiming to speak for the Asian American community, it is ironic that the constituency seldom heard from in this controversy is the Asian Pacific American student population itself. This irony is striking, given that it is Asian Pacific American students themselves who stand to gain or lose personally from the alleged quotas/affirmative action debate. The results from this study may serve to inform both sides of the political spectrum in higher education on Asian American students' views in the national debate on race and affirmative action.

### *Review of Literature*

Most studies examining students' views toward affirmative action do not study APA attitudes specifically, but instead compare the attitudes of students in several different racial/ethnic groups. For example, in a nationally representative sample of first-year college students, Sax and Arredondo (1999) found that 50% of Asian Pacific American freshmen agreed that affirmative action in college admissions should be abolished, in comparison to 58% of White, 23% of African American, and 38% of Mexican American students. Other researchers have found that Asian Pacific American students' reactions to affirmative action in higher education may vary. In a survey of students at UC Santa Cruz during the early 1990s, Fukurai et al. (1995) found that slightly more than half of the APA students in their study felt that affirmative action provided opportunities for less-qualified applicants than themselves, but 75% of the same APA students indicated that they supported affirmative action policies in education. A study conducted at UC Berkeley concluded that APA students' opinions "were the most conflicted" and "complex" of all the racial/ethnic groups of students regarding the diversification of the student body and opposition to affirmative action (The Diversity Project, 1991, p. 15, 27). These studies suggest that Asian Pacific American students hold multifaceted views on affirmative action in higher education and that their views may be influenced by context.

The above differences in APA opinion on affirmative action may be attributed to the varying ways in which the term "affirmative action" is defined and interpreted and how this term is then operationalized in survey research. Affirmative action can be defined as broadly as a redistributive policy designed to promote social equity and as specifically as the use of different college-admissions criteria for underrepresented minority applicants. Thus, when assessing affirmative action attitudes, some researchers have chosen to represent affirmative action constructs in different contexts. Examples include garnering respondents' opinions on affirmative action in higher education via differential admissions criteria for minority applicants, minority scholarships, minority academic support programs, and special minority facilities (Smith, 1998). Fukurai et al. (1995) asked their respondents several questions about affirmative action perceptions, including whether affirmative action represents reverse discrimination, a form of reparation, a denial of meritocracy, or even the promotion of mediocrity.

Several studies in the social science literature have conceptualized Americans' views on racial issues (such as affirmative action) in terms of individuals' views toward racial diversity at an abstract level versus their views on specific race-based policies and issues. For example, sociological research has been grappling with competing theories on why some Americans overwhelmingly support racial equality on a broad social level, but tend to hedge somewhat in their support of racial integration policies, such as busing to desegregate schools, voting for minority political candidates, and affirmative action (Bobo, 1983; Jackman, 1978; McConahay, 1982). The current study follows this sociological tradition by examining Asian Pacific American students' attitudes toward the general principles that undergird affirmative action policies as well as the more specific ways in which affirmative action is manifested in higher education.

Prior sociological and social psychological literature has been helpful in probing the influences behind Americans' complex views toward racial issues such as affirmative action. While most of this literature has not focused explicitly on the racial attitudes of Asian Pacific Americans, it is insightful in understanding people's motives for their racial views in a broader context (Cheng & Espiritu, 1989; Sax & Arredondo, 1999; Serafica, 1992). Perhaps the most basic of the sociological theories interpreting how individuals react to affirmative action relates to ways in which Americans perceive their own self-interests. The self-interests theory posits that individuals tend to support or oppose policies like affirmative action based on how such policies affect their access to scarce resources or material interests, such as college admissions (Blalock, 1967; Bobo, 1983). Sax and Arredondo (1999) found that APA college freshmen who were not attending their first-choice college were more likely to oppose affirmative action in admissions decisions. The self-interest theory suggests that these APA students were likely to feel that their chances for admission in their school of preference (i.e., a "scarce resource") were thwarted by affirmative action policies.

Kluegel and Smith (1986) offer a different theory on why Americans may differ in their attitudes toward affirmative action. The authors contend that Americans' views on affirmative action are based on opposing perspectives of the structure of opportunity in American society. According to their theory, White Americans tend to oppose affirmative action because of an abiding personal conviction in a construct called the dominant ideology (also known as the "American dream" ideology), which asserts that opportunity and success should be obtained through hard work and merit, and not through redistributive social interventions like affirmative action. In contrast, African Americans tend to view society through a lens of racial stratification, where economic and social opportunities for Black Americans are impeded due to structural obstacles that obstruct minority success. Consequently, the authors argue that most African Americans tend to support interventions like affirmative action in order to open access to social and economic mobility.

In a study of Mexican, Korean, and African Americans in Los Angeles, Cheng and Espiritu (1989) noted that foreign-born Koreans and Mexicans tended to share an "immigrant" ideology of America as the land of opportunity, since they often left their home countries to expand their economic and social opportunities in the U.S. In addition, several authors have stated that APA students regard a good education as the primary pathway to economic and social mobility (The Diversity Project, 1991; Osajima, 1991). Thus, these studies suggest that Asian Pacific Americans relate strongly to the dominant ideological perceptions of America as an opportunity-based society and education as the basis of merit through which social mobility is fostered. Moreover, many APA college applicants, who have outperformed their racial/ethnic peers among several traditional college-admissions criteria (Owings et al., 1995), may feel that academic achievement and college preparation serve as the merit through which applicants should be granted admission to highly selective colleges, and not personal characteristics such as one's racial/ethnic background.

The social psychological literature adds an additional dimension in the investigation of Asian Pacific American affirmative action attitudes by hypothesizing a relationship between a minority group member's stage of racial identity development and his/her racial attitudes. For example, Cross (1990) and Atkinson, Morten, and Sue (1989) theorize that minority group members who begin their process of racial/ethnic identity development from a dominant cultural perspective tend to manifest the values of the dominant culture. On the other hand, minority group members in the ethnocentric phase of their racial/ethnic identity development are most likely to reject the value structure of the dominant culture in favor of the values of their ethnic group. Thus, an APA student in the dominant cultural phase of identity development may oppose affirmative action, since several studies show widespread opposition among White Americans to race-targeted policies like affirmative action (Kinder & Sears, 1981; McConahay, 1982; Thernstrom, 2000). Conversely, APA students who manifest a more ethnocentric, and thus minority-based, identity may be more likely to reject the views of the dominant culture and embrace a more minority-oriented perspective, inferring support for affirmative action, since the majority of minority group members support the policy (Hochschild, 1995; Kluegel & Smith, 1986; Sax & Arredondo, 1999).

What may distinguish Asian Pacific American college students from the subjects of these social science studies, however, is that APA students' racial attitudes are also likely to be influenced by their college experiences and interactions. A large volume of the higher-education literature studying the impact of college on students' racial attitudes has concluded that both academic and social facets of the college environment have an effect on students' views on race (see, for example, Astin, 1993; Hyman, Wright, & Reed, 1975; Pascarella & Terenzini, 1991). Recent studies have validated a relationship between specific academic majors—such as those students with majors other than mathematics, science, or business—or students who have taken ethnic studies course patterns and more tolerant racial attitudes (Astin, 1993; Milem, 1992; Muir, 1989; Pascarella & Terenzini, 1991). Several studies conclude that student involvement with university-sponsored diversity programs and activities, such as racial/cultural workshops or ethnic studies courses, increase commitment to the promotion of various positive racial attitudes and behaviors (Hurtado, Dey & Trevino, 1994; Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1996; Springer, Palmer, Terenzini, Pascarella, & Nora, 1996).

Results from a national longitudinal study of college-student experiences (Hurtado, 1990), found that the time students spent in ethnically focused student groups and organizations was positively associated with increased commitment to the promotion of racial understanding. Similarly, three other studies using the same data revealed that students who socialized with peers from different racial/ethnic groups were more likely to have liberal racial attitudes (Antony, 1992; Astin, 1993; Milem, 1992). Finally, studies indicate that minority students at predominantly White institutions hold strong negative perceptions about their campuses' racial climates (see for example, Cabrera & Nora, 1994; Hurtado, 1992; McClelland & Auster, 1990; Nora & Cabrera, 1996), and that these negative perceptions of the environment affect these students' racial attitudes (Hurtado, 1992; Hurtado, 1994).

Thus, as the results of these disparate bodies of literature review infer, it seems that an individual's views toward affirmative action are not influenced by one single factor, but a myriad of several different factors. This study seeks not to exclude some interpretations in favor of others, but instead combines several theories into one framework in order to examine the influence of all the factors as they interplay simultaneously regarding Asian Pacific American students' affirmative action attitudes.

### *Conceptual Framework for the Study*

In order to fuse theories advanced in separate paradigms into one framework, this study utilizes an exploratory deductive design (Creswell, 1994). Because this study examines the attitudes of college students and assumes that the college experience has an impact on students' social beliefs, the primary organizational framework for this inquiry is a combination of two college-impact models: the Astin (1993) inputs-environments-outcomes (I-E-O) model, and the Weidman (1989) undergraduate socialization model. The Astin I-E-O model posits that "outcomes," or student characteristics after exposure to college, are influenced both by (1) "inputs," or student characteristics before and at time-of-entry to college, and (2) "environments," or various programs, policies, faculty, peers, and educational experiences that students interact with while in college. Although similar in structure to the I-E-O model, the Weidman undergraduate socialization model differs slightly through its incorporation of two unique inputs: the influences of parental socialization and other noncollege reference groups on students' attitudes prior to and during their college years. Using these two models as the foundation for this study's conceptual framework, the constructs incorporated into the framework were selected from prior empirical theory or evidence from the college impact, sociological, and social psychological literatures and are described below.

### *Variables Utilized in the Study's Conceptual Framework*

The "inputs" of the framework were derived from precollege influences described in Weidman's (1989) model, such as: gender, "parental socialization," (e.g., parents' education level and generation status), and academic aptitude (measured by respondents' SAT or converted ACT scores). Self-interests, the first sociological construct incorporated in the study's conceptual model, are represented by whether the APA respondents were attending their first-choice institution or not (Sax & Arredondo, 1999). Self-interest beliefs are placed in the "inputs" portion of the framework because college-application experiences occur prior to students' college entry.

Several components of the college experience found by the higher-education literature to bear an influence on students' racial attitudes composed the "environments" portion of the framework. Following the Weidman (1989) undergraduate socialization model, these measures are divided into two groups: academic and social contexts. Academic contexts include: (1) APA students' choice of major; (2) a measure of students' level of exposure to a diverse curriculum; and (3) students' extent of involvement with university-sponsored diversity events. Social contexts include: (1) participation in Asian ethnically focused extracurricular activities; (2) the extent to which APA students' engage in informal conversations about diversity with their peers; and (3) APA students' perceptions of their campus's climate for interracial interaction.

Since social scientists and developmental theorists (e.g., Alwin, Cohen, & Newcomb, 1991; Chickering, & Reisser, 1993; Erikson, 1963) have found the college years to be a period of critical importance in attitude change and identity formation, it is reasonable to expect that APA students' beliefs about the dominant ideology and their perceptions of their racial/ethnic identity might change as a result of the influence of their college experiences. It is also the hypothesis of this study that APA students' views toward affirmative action are influenced by their dominant ideology beliefs and racial/ethnic identities as well. Thus, these constructs are treated as "intermediate outcomes" (Astin, 1993): measures that are influenced by students' college environments but also bear an influence on APA students' views toward affirmative action (outcome measure).

Beliefs in the dominant ideology were assessed through two composite measures relating to opposing perceptions about the structure of opportunity in American society: one variable measured the extent to which APA students felt that wealth could be accumulated through hard work and initiative, and one measured the extent to which they felt that poverty was attributable to individual failings and not social biases. These measures approximate the opposing views of the dominant ideology as represented by Kluegel and Smith (1986). APA racial/ethnic identification was operationalized through two measures—the extent to which the students reflected on their Asian American identity and felt they shared common interests with White Americans. The second identity measure was chosen to assess any potential relationships between a dominant cultural identity and dominant belief systems, while the first identity measure was incorporated into the framework in order to examine possible associations with a minority-based identity and a minority-based beliefs system.

The outcomes (dependent variables) of this study involve two measures of Asian Pacific American students' attitudes toward affirmative action in the higher-education context. The results of previous studies (e.g., The Diversity Project, 1991; Fukurai et al., 1995) imply that Asian Pacific Americans hold varying views toward affirmative action, depending upon circumstance and characterization. Accordingly, this study follows prior sociological research, which examines the differentiation that some Americans draw between abstract views on racial diversity and more narrowly tailored attitudes toward race-based policies and issues (e.g., Bobo, 1983; Jackman, 1978; McConahay, 1982). One of the affirmative action outcome measures relates to APA students' beliefs on whether or not higher education has a responsibility to promote increased equity and opportunity for diverse students. The "Affirmative Action Principles" scale measure ($\alpha = .675$) is composed of the following individual items:

- Continued racial and ethnic discrimination within higher education requires that universities aggressively remove institutional barriers that promote inequality
- By including multicultural perspectives in the curriculum, universities are fulfilling the real purpose of higher education
- Despite our concern over racial injustice, colleges and universities do not have a primary responsibility to correct the situation (reverse coded).

The other outcome measure evaluates APA students' opinions on the ways in which affirmative action is implemented on college campuses in order to promote diversity goals. The "Affirmative Action Practices" scale measure ($\alpha = .689$) encompasses the following individual items:

- Differential SAT or ACT criteria for students of color in admissions decisions being justifiable
- A high priority being given to financial aid for students of color
- The hiring of more faculty of color as a top priority.

See Appendix A for the factors that comprise the study's composite measures. For a description of all of the variables in the study, see Appendix B. Figure 1 below depicts the entire conceptual framework for this study.

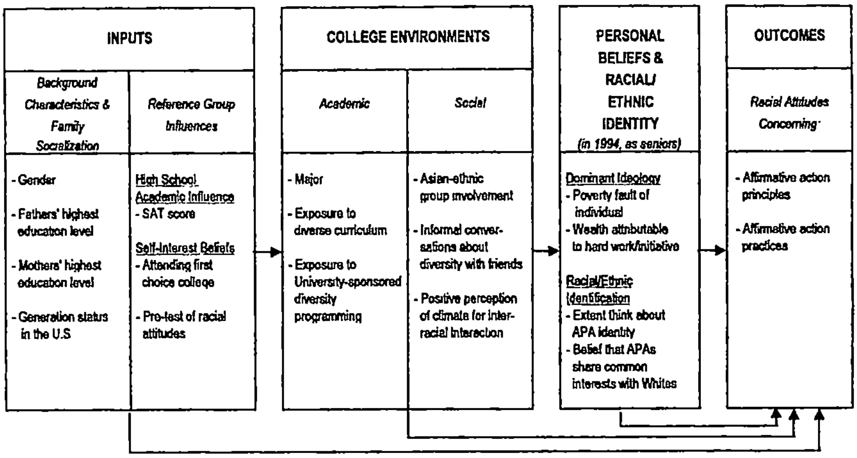
INPUTS
Background Characteristics & Family Socialization
Reference Group Influences
- Gender
- Fathers' highest education level
- Mothers' highest education level
- Generation status in the U.S
High School Academic Influence
- SAT score
Self-Interest Beliefs
- Attending first choice college
- Pre-test of racial attitudes
COLLEGE ENVIRONMENTS
Academic
Social
- Major
- Exposure to diverse curriculum
- Exposure to University-sponsored diversity programming
- Asian-ethnic group involvement
- Informal conversations about diversity with friends
- Positive perception of climate for inter-racial interaction
PERSONAL BELIEFS & RACIAL/ ETHNIC IDENTITY
(in 1994, as seniors)
Dominant Ideology
- Poverty fault of individual
- Wealth attributable to hard work/initiative
Racial/Ethnic Identification
- Extent think about APA identity
- Belief that APAs share common interests with Whites
OUTCOMES
Racial Attitudes Concerning·
- Affirmative action principles
- Affirmative action practices

FIG. 1. Conceptual Framework for Influences on Asian Pacific American Students' Attitudes toward Affirmative Action

### *Data and Sample*

The data in this study uses a portion of a longitudinal survey that focuses on undergraduate students' expectations and experiences with multiculturalism and diversity at a large public research university in the Midwest. The survey followed the experiences of the class of 1994 and was executed in four waves: the 1990 fall term, the 1991 winter term, the 1992 winter term, and the 1994 winter term. The sample for the 1990 fall term survey wave consisted of all incoming first-year students in the class of 1994 (n=4,591). Two thousand six hundred (2,600) students completed and returned the 1990 fall term survey, for a response rate of 57%. The next three survey waves were again administered to all students of color in the class of 1994, and a large representative sample of White/Caucasian students from the entire population, and not only those White students who responded to the fall 1990 survey. The overall response rates for the 1991, 1992, and 1994 data collections were 60, 52, and 73%, respectively. Those students selected for the sample in the first three waves were mailed a survey. In order to ensure a high response rate for the fourth and final survey, participants in this data collection wave were given a $10.00 award if they completed and returned their surveys.

Of a total pool of 414 Asian Pacific American matriculants in the class of 1994, 259 APA students completed the entrance survey in fall 1990, a response rate of 63%. With each subsequent wave, as expected, the response rate for Asian Pacific American students dropped each year, except for the fourth wave: 61% in Winter 1991 (n=221); 55% in Winter 1992 (n=188); and 75% in Winter 1994 (n=248). The largest longitudinal matched sample of Asian Pacific American respondents in the study were APAs who participated in the fall 1990 and winter 1994 sample (n=184). Thus, in order to capitalize on the longitudinal strength of the survey but also maintain as much statistical power as possible, the 1990 and 1994 matched sample was chosen for the multivariate portion of this study.

The Asian Pacific American sample in this study was diverse. There were seven identified Asian ethnic groups represented in the sample: South Asian (24%); Chinese (16%); Korean (15%); Filipino (15%); Taiwanese (8%); Japanese (3%); and Vietnamese (2%). Because this university does not collect information on the ethnic origins of their Asian Pacific American students, there was no way to determine the representativeness of this sample in relation to the entire campus community.

While nearly the entire Asian Pacific American sample was composed of U.S. citizens (99%), 62% of the APA respondents were the first generation in their families to be born in the United States, and nearly 30% were naturalized citizens. Approximately one-third came from bilingual or nonnative English-speaking homes. Yet, these APA students with recent immigration histories did not grow up in Asian ethnic enclaves: nearly 80% of the APA students in the sample indicated that their home communities were predominantly or all-White in composition. Thus, when these APA students arrived on this campus and interacted with a student body composed of one-third students of color, it may have been the first time these students encountered such racial/ethnic diversity.

At first blush, one might suspect that the characteristics of this Asian Pacific American sample are not reflective of the larger, national APA experience. However, 1990 Census data reveals that, similar to the sample in this study, the APA ethnic groups with the largest representation in the United States are Chinese, Filipino, and South Asian Americans (Lapham, Montgomery, & Niner, 1993). The sample also includes a large proportion of first-generation American-born Asian Pacific Americans. Additional Census data indicates that, in 1990, six in ten Asian Pacific Islander adults in America were born outside of the United States. However, the same data reports that the greatest portion of these APA foreign-born adults were between the ages of 35 and 44 (Lapham et al., 1993), so the American-born children of the adults in this age bracket may have been the predominant group attending the institution of focus in this study from 1990 to 1994.

Finally, it is important to note that, while the majority of APA students in this sample came from largely White homogeneous communities, this does not mean that they wholly identified with the dominant majority while growing up. Descriptive statistics from the data show that, at college entry, 32% of the APA sample had already thought fairly often or a lot about their Asian Pacific American identity, and 92% believed that they shared a common fate with other Asian Pacific Americans. Thus, while the Asian Pacific American students in this study may not have been exposed to organized APA communities that are more prevalent on the West coast (Espiritu, 1991), a substantial number of them had already reflected on the uniqueness of their APA identity and affiliation prior to college entry.

### *Overview of Analytical Methods*

The methodological analysis in this study consists of three parts: data preparation, descriptive analyses, and two sets of multivariate analyses. First, several original variables were reverse coded so that positive or "high" responses were of the highest value in all cases. All nominal data was transformed into dichotomous measures and one category was taken out of the multivariate analyses and used as the referent category. Because of the limited number of cases available for the study, all missing data among the independent variables—with the exception of background characteristics—were assigned mean substitutions. It is important to note, however, that the greatest percentage of item nonresponse among the measures in the study was only 7%. Mean replacement values were based upon the mean values of the responses for each independent variable for the entire longitudinal matched APA sample (n=184). The last step of the data preparation involved the creation of several composite variables as a method of data reduction. Principle components factor analysis with orthogonal rotation were utilized to create several scale items in the analysis. All of the scale measures in this study have an eigenvalue of greater than 1.0 and alpha reliabilities of .631 or higher. (For more information on the scale measures, see Appendix A.)

The results of this study are informed through a series of descriptive and multivariate analyses. The descriptive analyses include chi-square crosstabulations of Asian Pacific American students' attitudes toward both affirmative action outcome measures, as compared to the attitudes of students from other racial/ethnic groups. Additional descriptive analyses were incorporated into the study in order to provide a rough portrait of differences among Asian Pacific American subgroups (e.g., among APA students of different genders, ethnic backgrounds, and generation statuses). There were two types of multivariate analyses utilized in this study: ordinary least-squares regression and path analyses. The regression analyses were conducted using SPSS for Windows v10, and the path analyses utilized AMOS v4.

Because the Asian Pacific American sample for this study was limited to less than 200 cases, the number of variables integrated into the conceptual framework was necessarily parsimonious. However, in striving to understand a complex phenomenon such as individuals' attitudes toward racial issues such as affirmative action, this study also endeavored to combine as many constructs from the social science literature as possible into the study's conceptual framework. In order to address this methodological difficulty, two multivariate techniques were used in concert with one another. First, separate regression analyses were conducted on the two affirmative action dependent measures, utilizing all of the independent variables identified in the conceptual framework. Correlations of all of the variables in the framework were run to check for potential multicollinearity among the measures.

However, since college environments are dynamic settings in which students interact in multitudinous fashions with their peers, studies, and environments, one cannot assume that students compartmentalize their lives into discrete parts that uni-dimensionally affect their social beliefs. Indeed, it is likely that certain facets of APA students' lives and college experiences interact directly *and* indirectly to collectively influence their beliefs about a complex racial issue such as affirmative action. Thus, path analyses were subsequently utilized to uncover some of the interconnections and indirect relationships that affect Asian Pacific American students' affirmative action attitudes.

In order most clearly and effectively to elucidate the relationships among key constructs that affect APA students' affirmative action attitudes while maintaining statistical power, the path models were restricted to a limited set of variables from the conceptual framework that emerged as significant predictors and/or measures that shared variance from the regression analyses. It is critically important to note, however, that all of the associations in the path models—while they may have been initially highlighted through the results from the regressions—were also *a priori* assumptions validated through prior empirical findings. Three indexes were utilized to examine the overall fit of the path models: the chi-square ($\chi^2$) index (Hoyle & Panter, 1995); the goodness of fit index or GFI (Hu & Bentler, 1995); and the root mean square error of approximation or RMSEA (Browne & Cudeck, 1993). The graphic illustrations of the path models in the results section include the significant standardized estimates of the various paths in the models.

## *Results*

Table 1 represents Asian Pacific American and other racial/ethnic students' support or opposition to affirmative action in principle and in practice. The bivariate results show that over 98% of APA students tend to agree with affirmative action in principle, but considerably fewer APA students agree with affirmative action in practice. In fact, almost 30% oppose affirmative action practices. The distinction between support for affirmative action in principle versus practice is more sharply drawn by Asian Pacific American students than by their racial/ethnic peers: APA students are among the most likely (exceeded only by African Americans) to support affirmative action in principle, but are also among the most likely (exceeded only by White/Caucasians) to oppose affirmative action in practice. Moreover, additional analyses revealed that the greatest percentage of students in any racial/ethnic group who strongly agreed with affirmative action principles but also disagreed with affirmative action practices were Asian Pacific American students (14.3%), compared to White (12.9%), Hispanic/Latino (5.4%), and African American (1.0%) students, respectively.

TABLE 1

Views on Affirmative Action Among Students in their Fourth Year of College, 1994 (in percentages)

| Construct | Asian Pacific American (n=184) | White/ Caucasian (n=814) | African American (n=92) | Hispanic/ Latino (n=55) | Chi-Square |
|---|---|---|---|---|---|
| Views on affirmative action in principle | | | | | |
| Strongly disagree | 0.0 | 1.1 | 0.0 | 0.0 | $\chi2=216.87$; $df=9$; $p< 0.001$ |
| Disagree | 1.8 | 7.6 | 0.0 | 3.1 | |
| Agree | 48.0 | 67.5 | 24.4 | 45.9 | |
| Strongly agree | 50.2 | 23.8 | 75.6 | 51.0 | |
| Views on affirmative action in practice | | | | | |
| Strongly disagree | 0.8 | 7.3 | 0.0 | 2.8 | $\chi2=428.70$; $df=9$; $p< 0.001$ |
| Disagree | 28.3 | 41.1 | 2.3 | 17.8 | |
| Agree | 55.7 | 44.2 | 33.0 | 54.2 | |
| Strongly agree | 15.2 | 7.5 | 64.8 | 25.2 | |

Thus, as was the pattern in prior literature (e.g., Fukurai et al., 1995; The Diversity Project, 1991), it does appear that Asian Pacific American students hold contrasting views toward affirmative action. In this case, some APA students draw a conceptual difference between the broad principles that undergird affirmative action (affirmative action principles) and the specific ways in which affirmative action is implemented on college campuses (affirmative action practices). While students in other racial/ethnic groups (particularly White/Caucasian and Hispanic/Latino students) also seem to draw this conceptual difference, APA students swing the most sharply between support for affirmative action principles and opposition to affirmative action practices.

One might ask if there are any particular patterns of support or opposition among different Asian Pacific American subgroups. For example, do APA male and female students differ in their views of the two different conceptions of affirmative action? Do APA students from different ethnic backgrounds and generation statuses also draw distinctions between their support for affirmative action principles and practices? Indeed, one of the major criticisms of research on Asian Pacific American college students is that it does not examine the diversity of experiences within the different ethnic and other subgroups that comprise this racial group (Yonezawa & Antonio, 1996).

Although the chi-square distributions are working with relatively small numbers of cases within the subgroups, Table 2 shows that Asian Pacific Americans of different genders and ethnic backgrounds appear to differ in their views on affirmative action principles. APA females more strongly agreed with sentiments related to affirmative action principles, while almost 15% of APA males disagreed. Very few APA students among the various ethnic subgroups tended to oppose affirmative action principles, except for 14.3% of Taiwanese-American and 23.1% of Chinese-American students. These two groups were, correspondingly, the least likely to strongly support affirmative action principles. Interestingly, the chi-square analyses revealed no significantly different patterns of opinion on affirmative action among APA students of different generation status. However, this may be due in part to the limited number of students in the sample who were the second generation to be born in the United States.

Although insufficient numbers of cases among several APA ethnic groups precluded their inclusion in the multivariate analyses, the influences of gender and generation status were incorporated into the conceptual framework and causal analyses. In order to discover how these key demographic characteristics affect APA students' affirmative action attitudes, as well as other factors that may fuel the differences in APA attitudes toward affirmative action principles versus practices, multiple regression and path analyses were conducted.

### *Influences on APA Support for Affirmative Action Principles*

Table 3 summarizes the predictors from the multiple-regression analysis for Asian Pacific American support for affirmative action principles. Due to the fact that APA opposition to affirmative action principles was very low (2%), it is important to note that this analysis is more likely to help the reader distinguish between those Asian Pacific American students who strongly support affirmative action principles and those who are slightly less ardent in their support. For example, it appears that females were more likely to strongly support affirmative action principles until the college environment blocks were introduced in the regression equation. Interestingly, the gender effect disappears when the block including APA humanities and social sciences majors is entered, perhaps suggesting that the influence of gender is mediated through APA students' major choice.

Among academic college environments, initially, APA humanities and social sciences majors were significantly more likely to strongly support affirmative action in principle, yet this relationship became nonsignificant when the block of variables representing APA students' social college experiences was entered. Asian Pacific American students who found the climate for interracial interaction to be less inviting were more

TABLE 2

Differences in Affirmative Action Attitudes Among Different Asian Pacific American Subgroups (in percentages)

| Variable | Affirmative Action Principles | | | | | Affirmative Action Practices | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Strongly agree | Agree | Disagree | Strongly disagree | Chi-square | Strongly agree | Agree | Disagree | Strongly disagree | Chi-square |
| By gender | | | | | | | | | | |
| Male (n=84) | 24.7 | 60.5 | 14.8 | 0.0 | $\chi^2$=19.94; *df*=2; *p*<0.001 | 10.7 | 53.6 | 33.3 | 2.4 | $\chi^2$=5.79; *df*=3; NS |
| Female (n=88) | 48.8 | 51.2 | 0.0 | 0.0 | | 21.6 | 51.1 | 27.3 | 0.0 | |
| By ethnic background[a] | | | | | | | | | | |
| Chinese (n=29) | 23.1 | 53.8 | 23.1 | 0.0 | $\chi^2$=17.38; *df*=8; *p*<0.05 | 3.4 | 55.2 | 41.4 | 0.0 | $\chi^2$=17.88; *df*=12; NS |
| Korean (n=27) | 40.7 | 59.3 | 0.0 | 0.0 | | 15.4 | 50.0 | 34.6 | 0.0 | |
| South Asian (n=39) | 43.2 | 51.4 | 5.4 | 0.0 | | 25.6 | 53.8 | 20.5 | 0.0 | |
| Taiwanese (n=14) | 21.4 | 64.3 | 14.3 | 0.0 | | 21.4 | 28.6 | 50.0 | 0.0 | |
| Other/no specification (n=28) | 48.1 | 51.9 | 0.0 | 0.0 | | 21.4 | 60.7 | 14.3 | 3.6 | |
| By generation status | | | | | | | | | | |
| Born outside U.S. (n=51) | 32.7 | 59.2 | 8.2 | 0.0 | $\chi^2$=1.72; *df*=4; NS | 17.6 | 51.0 | 31.4 | 0.0 | $\chi^2$=7.35; *df*=6; NS |
| 1st generation born in U.S. (n=108) | 38.3 | 55.1 | 6.5 | 0.0 | | 15.7 | 54.6 | 27.8 | 1.9 | |
| 2nd generation born in U.S. (n=10) | 20.0 | 80.0 | 0.0 | 0.0 | | 0.0 | 20.0 | 80.0 | 0.0 | |

[a] NOTE: The Japanese and Vietnamese samples were excluded from the analysis, due to an insufficient number of cases within each group (n < 10).

TABLE 3

Predictors of Asian Pacific American Students' Support for Affirmative Action Principles for the 1990 and 1994 Matched Sample (n=184)

|  | Block 1 | Block 2 | Block 3 | Block 4 | Block 5 | Block 6 | Block 7 |
|---|---|---|---|---|---|---|---|
| Variable | β Sig | β Sig | β Sig | β Sig | β Sig | β Sig | β Sig |
| Background characteristics and family socialization |  |  |  |  |  |  |  |
| Gender (female) | 0.24 ** | 0.23 ** | 0.23 ** | 0.20 ** | 0.15 | 0.14 | 0.09 |
| Father's highest education level | 0.18 * | 0.19 * | 0.19 * | 0.12 | 0.13 | 0.12 | 0.07 |
| Mother's highest education level | –0.18 * | –0.18 * | –0.18 * | –0.15 | –0.18 * | –0.11 | –0.09 |
| Generation status in U.S. | –0.11 | –0.11 | –0.11 | –0.13 | –0.09 | –0.11 | –0.09 |
| Reference group influences |  |  |  |  |  |  |  |
| Academic influence: SAT or converted ACT score | –0.05 | –0.05 | –0.05 | –0.05 | –0.06 | –0.10 | –0.09 |
| Self-interest beliefs in 1990 |  |  |  |  |  |  |  |
| Attending first choice college | 0.02 | 0.00 | 0.00 | 0.02 | 0.01 | 0.01 | 0.02 |
| Pretest of affirmative action principles in 1990[a] |  |  |  |  |  |  |  |
| Colleges should provide resources for minority activities | 0.23 ** | 0.23 ** | 0.23 ** | 0.18 ** | 0.19 ** | 0.16 * | 0.18 * |
| Colleges have a responsibility to correct racial injustice | 0.29 **** | 0.30 **** | 0.30 **** | 0.27 *** | 0.26 *** | 0.29 **** | 0.26 *** |
| Academic college environments |  |  |  |  |  |  |  |
| Humanities or social sciences major | 0.17 * | 0.17 * | 0.17 * | 0.17 * | 0.17 * | 0.12 | 0.10 |
| Exposure to diverse curriculum | 0.03 | 0.04 | 0.04 | 0.02 | 0.01 | 0.01 | –0.02 |
| Exposure to University-sponsored diversity programming | 0.12 | 0.12 | 0.12 | 0.05 | 0.02 | 0.00 | 0.01 |
| Social college environments |  |  |  |  |  |  |  |
| Asian-ethnic group involvement | 0.17 * | 0.17 * | 0.17 * | 0.14 | 0.13 | 0.11 | 0.06 |
| Informal conversations about diversity with friends | 0.08 | 0.08 | 0.08 | 0.05 | 0.06 | 0.06 | 0.03 |
| Positive perception of climate for inter-racial interaction | –0.17 * | –0.18 * | –0.18 * | –0.23 *** | –0.21 ** | –0.21 ** | –0.17 * |
| Dominant ideology beliefs and racial/ethnic identity in 1994 |  |  |  |  |  |  |  |
| Poverty fault of individual | –0.28 *** | –0.28 *** | –0.28 *** | –0.22 ** | –0.20 ** | –0.19 ** | –0.15 * |
| Wealth attributable to hard work/initiative | –0.16 * | –0.15 | –0.16 * | –0.17 * | –0.18 * | –0.18 * | –0.09 |
| Extent think often about APA identity | 0.20 ** | 0.22 ** | 0.22 ** | 0.24 | 0.23 *** | 0.19 * | 0.15 |
| Believe APAs share common interests with Whites | 0.08 | 0.08 | 0.08 | 0.09 | 0.10 | 0.05 | 0.01 |
| $R^2$ | 0.09 | 0.09 | 0.09 | 0.21 | 0.23 | 0.29 | 0.34 |
| F | 2.88 ** | 2.35 ** | 1.94 * | 3.63 **** | 2.99 *** | 3.01 **** | 2.93 **** |

[a] Only some of the items that comprise the dependent scale measure from the 1994 survey wave were included on the 1990 survey wave. The single items that comprise the dependent variable are included as pretests for this analysis.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$

likely to strongly support for affirmative action in principle. In addition, APA students who questioned the dominant ideology view that poverty is the result of a lack of effort (and not structural discrimination) were marginally more likely to support affirmative action principles.

The results from the multiple regression analysis suggest that there are implied relationships among the independent variables in the conceptual framework that coalesce to influence APA students' attitudes toward affirmative action in principle. Depicted graphically, these relationships can be illustrated via the path model in Figure 2a.

Initial statistics of the path model revealed that the null hypothesis could not be rejected (p = .00). However, the modification indices specified by the program suggested that adding a parameter between gender and support for affirmative action principles would improve the overall model fit. Because females have consistently been found to be more likely to support racial-awareness issues (for example, Allen & Haniff, 1991; Carter, 1990; Qualls, Cox, & Schehr, 1992) the model was modified to include this relationship. With this modification, the null hypothesis was rejected (p = .84), and the chi-square index was 1.41 with four degrees of freedom (*df*). In addition, the GFI was .99, and the RMSEA was .00, both suggesting that the revised path model fit the data well.

Figure 2b details the parameter estimates for the revised path model depicting Asian Pacific American students' support for affirmative action principles. Again, it is important to note that the outcome variable is somewhat dichotomous, varying between APA students' strong agree-

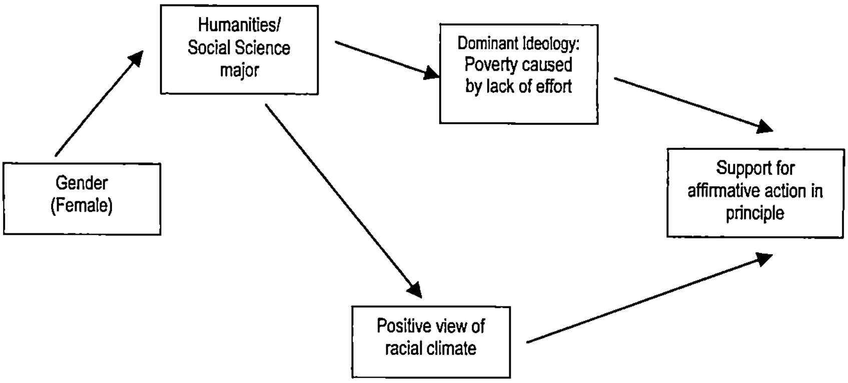
Humanities/ Social Science major
Dominant Ideology: Poverty caused by lack of effort
Gender (Female)
Support for affirmative action in principle
Positive view of racial climate

FIG. 2a. Hypothesized Path Model of APA Support for Affirmative Action Principles

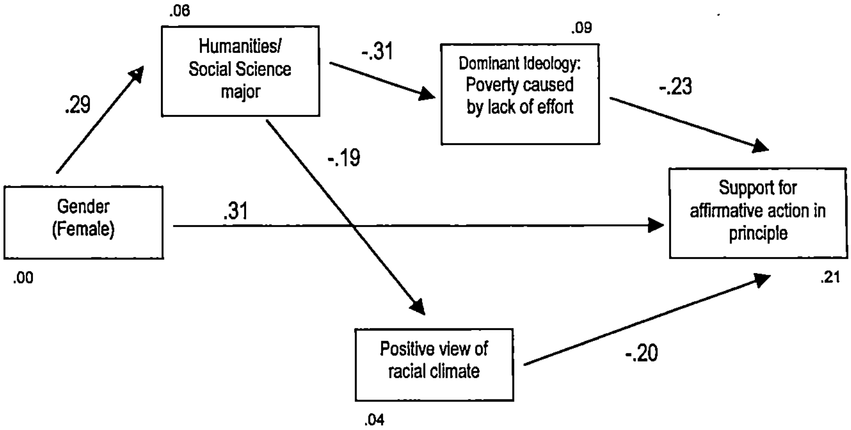
.06
Humanities/ Social Science major
.29
Gender (Female)
.00
-.31
.09
Dominant Ideology: Poverty caused by lack of effort
-.23
-.19
.31
Support for affirmative action in principle
.21
Positive view of racial climate
.04
-.20

FIG. 2b. Path Estimates of APA Support for Affirmative Action Principles

ment and slightly weaker agreement with affirmative action principles. (Appendix C reports the direct, indirect, and total effects of the path estimates for the affirmative action practices path model.) One of the strongest influences in the model is between Asian Pacific American females and their strong support for affirmative action principles. Again, this finding corroborates previous research, which found that females of other racial/ethnic groups were more likely to support issues related to racial tolerance and awareness (Allen & Haniff, 1991; Qualls et al., 1992). As was validated in the regression analysis, Asian Pacific American students who had doubts about the dominant ideology and held negative perceptions of the campus racial climate were directly associated with strong support for affirmative action in principle in the path model.

Yet, what influences Asian Pacific American students' dominant ideological beliefs and their perceptions of the campus racial climate? The path estimates in the model reveal that APA students who major in humanities or social sciences disciplines are significantly less likely to subscribe to the dominant ideological belief that poverty is caused by the faults of individuals and are also less likely to view the climate for interracial interaction to be positive. In addition, the indirect estimate of humanities/social sciences majors to support for affirmative action principles (mediated by dominant ideology views) is statistically significant.

This finding represents an important implication for higher-education institutions. While previous studies have connected students' choices of majors with assorted racial attitudes (e.g., Astin, 1993; Milem, 1992;

Muir, 1989), none of those studies have focused explicitly on *how* specific majors influence students' racial attitudes. The results from this path model reveal that majoring in humanities or social sciences fields influence the ways in which Asian Pacific American students think about the potential fallibility of the dominant ideology and the racial climate around them, and these perceptions directly influence APA students' views on affirmative action principles. Thus, while the relationship between humanities and social science majors and affirmative action views is not direct, this path model illustrates the complex ways through which curricular, personal ideological, and perceptual influences combine to impact students' racial attitudes.[1]

### *Influences on APA Support for Affirmative Action Practices*

The results depicted in Table 4 and Figure 3a/3b show the influences on APA students' support for affirmative action in *practice*. Unlike the affirmative action principles path regression and path models, APA students' attitudes toward affirmative action practices represent a broader range of opinion, with almost one-third of the APA sample registering disagreement with the ways in which affirmative action is implemented on college campuses. Thus, the associations in these multivariate analyses relate more to the extent to which Asian Pacific American students agree or disagree with affirmative action practices. Table 4 shows that Asian Pacific American students' views toward affirmative action practices are most strongly influenced by their personal beliefs, racial/ethnic identity, and the college cocurricular activities in which they participated. While APA background characteristics contributed very little to the percent of variance explained for the model, generation status did exhibit a modest relationship ($p < .10$) with affirmative action practices, implying that Asian Pacific Americans with recent immigration histories may be somewhat more likely to support affirmative action practices than APA students whose families have lived in the U.S. for at least one generation.

Among academic college environments, APA humanities and social sciences majors and APA students with frequent exposure to University-sponsored diversity programming were more likely to support affirmative action practices in early steps of the regression analyses, but the effects of these academic or campus coordinated activities were eventually overshadowed by several social college environments and APA personal beliefs. This indicates that the students who participated in University-sponsored diversity activities also tended to be involved in social college activities that influenced their support for affirmative action practices.

TABLE 4

Predictors of Asian Pacific American Students' Support for Affirmative Action Practices for the 1990 and 1994 Matched Sample (n=184)

| | Block 1 | Block 2 | Block 3 | Block 4 | Block 5 | Block 6 | Block 7 |
|---|---|---|---|---|---|---|---|
| Variable | β Sig | β Sig | β Sig | β Sig | β Sig | β Sig | β Sig |
| Background characteristics and family socialization | | | | | | | |
| Gender (female) | 0.06 | 0.07 | 0.07 | 0.12 | 0.05 | 0.01 | –0.08 |
| Father's highest education level | 0.20 * | 0.20 * | 0.20 * | 0.20 * | 0.17 | 0.15 | 0.08 |
| Mother's highest education level | –0.05 | –0.06 | –0.06 | –0.06 | –0.11 | 0.02 | 0.03 |
| Generation status in U.S. | –0.19 ** | –0.20 ** | –0.20 ** | –0.22 ** | –0.17 * | –0.17 ** | –0.14 * |
| Reference group influences | | | | | | | |
| Academic influence: SAT or converted ACT score | 0.05 | 0.05 | 0.05 | 0.08 | 0.07 | 0.00 | 0.00 |
| Self-interest beliefs in 1990 | | | | | | | |
| Attending first choice college | –0.01 | 0.00 | 0.00 | 0.03 | –0.01 | –0.04 | –0.05 |
| Pretest of affirmative action practices in 1990 | | | | | | | |
| Affirmative action practices | 0.32 **** | 0.32 **** | 0.32 **** | 0.32 **** | 0.29 **** | 0.25 *** | 0.23 *** |
| Academic college environments | | | | | | | |
| Humanities or social sciences major | 0.24 ** | 0.23 ** | 0.23 ** | 0.22 ** | 0.19 ** | 0.14 | 0.10 |
| Exposure to diverse curriculum | 0.09 | 0.08 | 0.08 | 0.07 | 0.06 | 0.01 | 0.02 |
| Exposure to University-sponsored diversity programming | 0.25 *** | 0.26 *** | 0.27 *** | 0.23 ** | 0.20 ** | 0.14 | 0.15 |
| Social college environments | | | | | | | |
| Asian-ethnic group involvement | 0.23 ** | 0.23 ** | 0.23 ** | 0.18 ** | 0.14 * | 0.06 | –0.03 |
| Informal conversations about diversity with friends | 0.26 *** | 0.26 *** | 0.27 *** | 0.20 ** | 0.19 ** | 0.23 ** | 0.19 ** |
| Positive perception of climate for inter-racial interaction | –0.31 **** | –0.31 **** | –0.31 **** | –0.32 **** | –0.29 **** | –0.31 **** | –0.25 *** |
| Dominant ideology beliefs and racial/ethnic identity in 1994 | | | | | | | |
| Poverty fault of individual | –0.38 **** | –0.38 **** | –0.38 **** | –0.35 **** | –0.30 **** | –0.28 **** | –0.24 *** |
| Wealth attributable to hard work/initiative | –0.24 ** | –0.25 *** | –0.26 *** | –0.34 **** | –0.32 **** | –0.28 **** | –0.11 |
| Extent think often about APA identity | 0.39 **** | 0.39 **** | 0.39 **** | 0.35 **** | 0.30 **** | 0.30 **** | 0.25 *** |
| Believe APAs share common interests with Whites | 0.07 | 0.07 | 0.07 | 0.05 | –0.01 | –0.01 | –0.03 |
| $R^2$ | 0.07 | 0.07 | 0.07 | 0.17 | 0.25 | 0.37 | 0.50 |
| F | 1.98 | 1.64 | 1.36 | 3.23 *** | 3.58 **** | 4.71 **** | 6.03 **** |

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$

APA students who engaged in more informal conversations about diversity with their peers were more likely to support affirmative action practices. This finding, as well as the somewhat weaker relationship between greater exposure to University-sponsored diversity activities and support for affirmative action practices, suggests that heightened involvement or exposure to racial/ethnic diversity in college increases the likelihood that Asian Pacific American students will support affirmative action practices. Similar to the affirmative action principles analysis, APA students who perceived that there was little interracial interaction on campus also tended to support affirmative action in practice.

The final block of constructs contributed the greatest amount of variance explained in the conceptual model, revealing that Asian Pacific American students' personal beliefs and racial/ethnic identification exert strong influences on their attitudes toward affirmative action practices. APA students who did not believe that poverty is due entirely to the faults of the individual were more likely to support affirmative action practices. In addition, APA students who reflected often about their racial/ethnic identity were more likely to support affirmative action practices. Thus, there does appear to be a link between APA students' racial/ethnic identity and their affirmative action views.

Findings from the affirmative-action-practices regression analysis indicate that many of the constructs in the conceptual framework were related to the outcome measure via indirect relationships. Those relationships can be summarized as the following in Figure 3a:

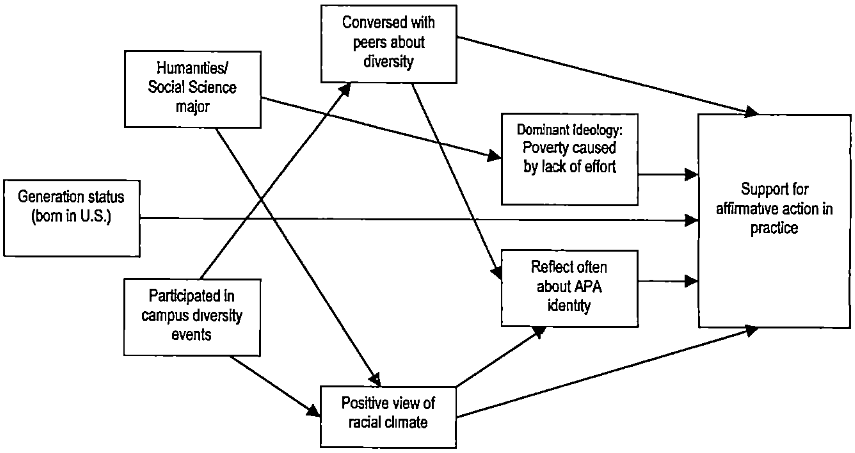
Conversed with peers about diversity
Humanities/ Social Science major
Dominant Ideology: Poverty caused by lack of effort
Generation status (born in U.S.)
Support for affirmative action in practice
Reflect often about APA identity
Participated in campus diversity events
Positive view of racial climate

FIG. 3a. Hypothesized Path Model of APA Support for Affirmative Action Practices

The null hypothesis of the above model was rejected (p = .16), and the chi-square index was 22.68 with 17 degrees of freedom (*df*). Addition tests of model fit indicated a good fit with the data: GFI = .97 and RMSEA = .05.

The path estimates in this model (see Figure 3b) reveal a complex portrait of influences on Asian Pacific American students' views toward affirmative action practices. (Appendix D reports the direct, indirect, and total effects of the path estimates for the affirmative action practices path model.) Again, APA students who doubt that poverty is due to the faults of individuals are likely to support affirmative action practices. In addition, APA students who think often about their racial/ethnic identities are more likely to support for affirmative action practices. Thus, the relationship between APA students' racial/ethnic identification and racial attitudes is once again validated in this study.

The path model identifies several facets of the college environment that are linked indirectly with APA students' support for affirmative action practices. Asian Pacific American students who had participated in University-sponsored diversity programming were more likely to have informal conversations with friends about diversity issues. In turn, APA students who had more conversations with their peers about diversity tended think more deeply about their own racial/ethnic identities, which ultimately influenced their support for affirmative action practices. Sim-

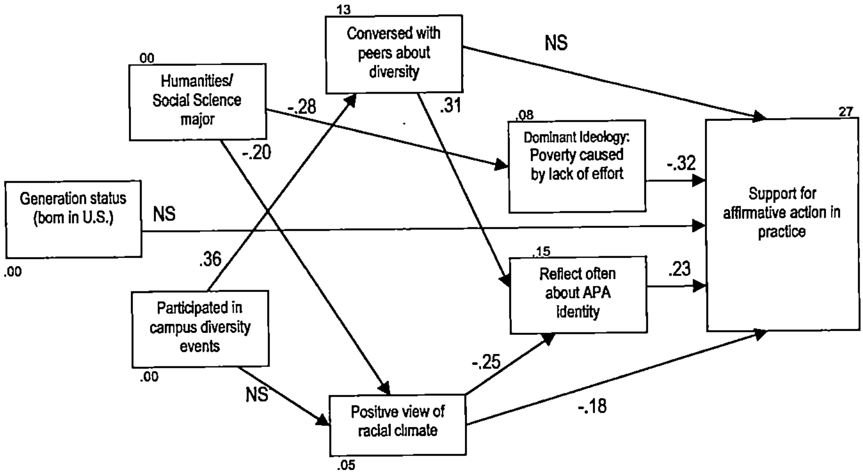
13
Conversed with peers about diversity
NS
00
Humanities/ Social Science major
-.28
.31
.08
Dominant Ideology: Poverty caused by lack of effort
-.32
27
Support for affirmative action in practice
-.20
Generation status (born in U.S.)
NS
.00
.36
.15
Reflect often about APA Identity
.23
Participated in campus diversity events
.00
-.25
NS
Positive view of racial climate
-.18
.05

FIG. 3b. Path Estimates of APA Support for Affirmative Action Practices

ilarly, APA students with negative perceptions of the climate for interracial interaction were more likely to reflect often upon their identities, which, in turn, influenced their support for affirmative action practices. Interestingly, while generation status remained a moderately significant predictor of APA students' views toward affirmative action practices through all seven blocks of the multiple regression analysis (see Table 4), the direct path between generation status and support for affirmative action practices in the path model was not significant. However, given that the final relationship between generation status and affirmative action practices in the regression analysis was marginal ($p < .10$), and that the block containing generation status and other APA background characteristics only contributed 7% of the variance in the model, the relationship in the regression may have been tenuous at best.

## *Discussion and Implications for Institutional Policy*

The results of this study inform research on racial attitudes in several important ways. First, some of the social science theories regarding the influence of personal beliefs systems on individuals' racial attitudes were useful in predicting Asian Pacific American students' affirmative action attitudes. APA students' beliefs about the structure of opportunity regarding the dominant ideology significantly influenced their views toward affirmative action: APA students who adhered strongly to the belief that poverty is the result of an individual's lack of effort (and thus rejected the notion that structural discrimination may impede personal achievement) were more likely to oppose affirmative action practices and be less likely to strongly support affirmative action principles. In this respect, the APA students in this study mirrored the sentiments of the White Americans of all ages in the Kluegel and Smith (1986) study, which also established a connection between faith in the dominant ideology and affirmative action attitudes.

However, not all personal beliefs theories were helpful in examining Asian Pacific American students' affirmative action attitudes. For example, there was no relationship between the self-interest measure (attendance at one's first-choice college) and APA students' affirmative action views. Thus, Asian Pacific American students who were not attending the college of their first choice were not significantly more likely to oppose affirmative action principles or practices than those who fared more positively in their college admissions experiences. This finding directly contradicts findings from a national cross-sectional study, which found that APA freshmen not attending the college of their first choice tended to oppose affirmative action (Sax & Arredondo, 1999).

This study only represents the views of a select sample of Asian Pacific Americans at one institution; therefore, the findings should be retested with a different and more diverse APA sample. However, in light of this limitation, the lack of significance of the self-interest construct in this study may indicate that initial college-application experiences are not as influential in shaping Asian Pacific American students' attitudes toward affirmative action as are other personal beliefs or college experiences. The Sax and Arredondo (1999) cross-sectional study only included freshmen in their national sample; accordingly, respondents' college application and acceptance experiences were fresh in their minds and more easily linked to their views on affirmative action in college admissions. However, this study incorporated longitudinal data and examined how Asian Pacific American students' college application experiences in 1990 affected their affirmative action views after four years of college in 1994. Thus, the results from this study suggest that Asian Pacific American students' affirmative action attitudes are more significantly influenced by their social beliefs and college environments than the outcomes of their college admissions experiences.

The results from this study also support the growing conjecture on the link between an individual's racial/ethnic identity development and his/her views toward broader racial issues. APA students who indicated that they thought often about their racial/ethnic identity were significantly more likely to support affirmative action practices than students who had not reflected upon their Asian Pacific American identity. This relationship may be due in part to the phenomenon described in the Tajfel and Turner (1986) social identity theory. The authors argue that minority group members, at some point in their lives, begin to make social comparisons among groups of people and start to identify the ways in which they are similar to some groups and dissimilar to others. This process for minority group members also includes the acknowledgement and antipathy of their group's marginalized status in relation to the dominant group. Thus, APA students who reflected more often on their racial/ethnic identity may have been likely to recognize the ways in which their status on campus as Asian Pacific Americans was subordinated to the dominant perspective. This may also explain why APA students who perceived the campus climate for interracial interaction to be negative would be more likely to contemplate on their Asian American identity; APA students' negative views about the structure of interracial relations on campus may cause them to become more reflective about the status of their racial/ethnic group in comparison with others. An enhanced APA identity, then, may have influenced Asian Pacific Americans to support higher-education policies that strive to increase minority representation and diversify cultural perspectives on campus.

The relationship between racial/ethnic identity and racial attitudes among Asian Pacific American students should be of great interest for higher education institutions seeking to influence the racial/ethnic diversity views of their students. What these results may suggest is that one of the best ways to enhance support for diversity issues among APA students is to promote and embrace Asian Pacific American awareness and recognition. Perhaps the most effective way for higher-education institutions to influence the diversity views of Asian Pacific American students is to make APAs more "visible" in the racial discourse by embracing the distinctions of the Asian Pacific American community in American race relations and recognizing APA contributions on campus and beyond (Osajima, 1995).

Also of interest to the higher education community, the multivariate and path analyses reveal that several academic and social college environments intertwine to influence Asian Pacific American students' attitudes toward affirmative action. For example, the path analyses showed that APA students who major in humanities or social science disciplines are less likely to place their faith in the dominant ideology, and in turn, APA students who are skeptical about the dominant ideology are associated with support for affirmative action principles and practices in higher education. Additionally, APA students who frequently participate in University-sponsored diversity programming are more likely to discuss diversity issues with their friends, which in turn cause them to think more about their Asian Pacific American identity. This enhanced reflection on their APA identity is, in turn, related to APA students' support for affirmative action practices.

These findings are of key importance for institutional programming in that they suggest a need to combine college-coordinated diversity activities with opportunities for informal peer interaction in order to maximize desired diversity outcomes. Institutional leaders should be made aware that most college activities and environments do not have a direct impact upon APA students' views on affirmative action. Instead, academic and social college contexts often intertwine to influence Asian Pacific American students' beliefs about the dominant ideology and extent of racial/ethnic identification, which may consequently help to shape their attitudes toward affirmative action. Therefore, campus practitioners should not only be mindful of the potential impact of a diversity program on their students, but also how that program may affect other aspects of their students' college experiences and belief systems. Indeed, the findings from this study corroborate the Milem & Hakuta (2000) assertion that the impact of diversity on educational outcomes can be enhanced when all three types of diversity (structural diversity, diversity-related initiatives, and diverse interactions) are present in the campus environment.

The study's findings also suggest that Asian Pacific American students' perceptions of their campus climate can be just as influential on their racial attitudes as the specific activities and involvements in the college environment in which they participate. APA students with negative perceptions of the climate for interracial interaction are more likely to support affirmative action both in principle and in practice. This may suggest that those APA students who perceive their campuses to be racially divided are supportive of policies such as affirmative action that are designed to increase minority representation and enhance racial integration.

The relationship between APA perceptions of the racial climate and opinions on affirmative action, however, may appear to place institutions in a catch-22 situation. While negative perceptions of the racial climate are associated with support for affirmative action, the data correspondingly suggests that positive perceptions of the racial climate are associated with opposition to affirmative action. Accordingly, should institutions strive to improve the racial climate, which may lead to an erosion of support for affirmative action, or should institutions—in order to maintain support for affirmative action—do nothing to improve their racial climates or allow them to become even worse? The higher education literature suggests the former. First, several studies have found that minority students—and not just Asian Pacific American students—typically hold negative perceptions of their campus racial climates and that these perceptions are associated with lower retention and greater alienation among minority students (see Nora & Cabrera, 1996; Cabrera & Nora, 1994; McClelland & Auster, 1990). Therefore, institutional efforts to improve their campus racial climates become crucial in addressing the larger issue of educational equity. Second, proponents of affirmative action argue that one important goal of affirmative action in higher education is to improve the climate for diversity on college campuses so that the learning environment is supportive of a plurality of perspectives (see, for example, Gurin, 1999). Thus, the emphasis for institutions regarding their racial climates should not be on how to maintain support for affirmative action among their constituents, but how to create diverse environments that support larger educational goals.

Prior research has provided some recommendations as to how institutions can work to improve their racial climates. In a national study of racial climates, Hurtado (1992) found that students who perceived their campuses to be "student centered" and institutions that had higher expenditures in student services and nonrepayable financial aid were more likely to have low levels of racial tension, while students who felt that their campuses were highly concerned with "resources or reputation" had higher levels of racial tension. Therefore, higher-education institutions may be able to influence their students' views on the racial climate by making attempts to improve the overall institutional culture or climate, such as increasing spending on student support and services. Since the results from this study suggest that the perceptual climate is a more potent and direct influence on APA students' racial attitudes than most of the other college environment measures, and since improved racial understanding is a goal to which most institutions aspire, it seems clear that more research should be conducted on the relationship between the institutional climate, the racial climate, and students' racial attitudes.

While this study focuses primarily on the affirmative action attitudes of Asian Pacific American college students, it also has important implications in the study of racial attitudes for *all* Americans. For example, the results of the data across racial/ethnic groups shows that there is a distinction between students' opinions on affirmative action in principle versus their opinions on affirmative action in practice. Greater than 90% of students from all racial/ethnic backgrounds overwhelmingly agree that higher education should play a key role in tackling racial discrimination and inequality. However, nearly 20% of Hispanic students, 28% of Asian Pacific American students, and 41% of White students do not support the affirmative action practices that many higher-education institutions apply. This distinction is conceptually important, in that students' opposition to affirmative action is not based upon their beliefs that colleges and universities do not have a have a responsibility to address racial inequality; the opposition stems from the ways in which affirmative action is applied in higher education.

This conceptual distinction between support for affirmative action in principle and in practice is vital to both future researchers and interpreters of affirmative action attitudes. Both researchers and readers should be cognizant that people's attitudes toward affirmative action can vary, depending upon the way in which the term "affirmative action" is defined. Thus, when opinions on affirmative action are investigated in future research, investigators should include measures that characterize affirmative action in different contexts. Indeed, merely asking respondents their opinions on affirmative action in general will most likely result in findings that are ambiguous and misleading.

In addition to suggesting new ways in which researchers should approach the study of affirmative action attitudes, the results of this study caution against reductive analyses of the affirmative action debate. It may be politically and empirically expedient to reduce opinion on affirmative action to a dualistic portrayal of "for" or "against." However—as the results from this study show for one racial/ethnic group in particular—attitudes toward affirmative action are, in reality, ambivalent and can be complicated by students' beliefs regarding the structure of opportunity, their conceptions of their own identity, and the academic and social contexts in which they learn and develop.

### *Limitations and Recommendations for Future Research*

This study contains several limitations. First, the data utilized was drawn from a single institution. Therefore, all interpretations are limited in their representativeness and generalizability. In addition to the bounded institutional context, this study is restricted by its limited Asian Pacific American sample size. According to Yonezawa and Antonio (1996), this is a common vulnerability of college-student data sets. Nevertheless, in order to capitalize upon the longitudinal strength of the survey data using this study's Asian Pacific American sample, the matched 1990 and 1994 APA sample demanded a streamlined conceptual framework and data analysis. Ideally, the study would have benefited by a larger Asian Pacific American sample, in which all of the conceptual antecedents of APA students' racial attitudes could be combined into a broader comprehensive framework. Moreover, when the APA longitudinal sample was broken up into Asian-ethnic groups (e.g., Chinese, Vietnamese, South Asian, etc.), the size of some of the ethnic groups became so small that they could not be used in the multivariate data analyses. Thus, it became impossible to examine the predictive power of ethnic backgrounds on APA students' affirmative action attitudes, which would have made the findings from the study more rich and informative.

The limitations in the sample may have contributed to some of the inconsistencies between some of this study's findings and previous research. An immediate task for future research is to replicate or refute some of the preliminary findings from this study that contradict prior literature. For instance, the results from this study show that the APA immigrant generation is marginally more likely to support affirmative action practices, although other literature argues that recent and voluntary immigrants, including many Asian Pacific Americans, tend to hold an abiding belief in the dominant, or "American dream," ideology (Cheng & Espiritu, 1989; Ogbu, 1991), and other research has shown that strong believers in the dominant ideology tend to oppose affirmative action

(Kluegel & Smith, 1986). In addition, self-interests (represented by APA students' college application outcomes) did not have any influence on affirmative action attitudes, despite prior results to the contrary (Sax & Arredondo, 1999). Further investigation on the relationship between generation status and perceived self-interests on Asian Pacific Americans' affirmative action attitudes should be pursued with a longitudinal, multi-institutional, and a diverse regional APA sample.

While this study has preliminarily linked Asian Pacific American racial/ethnic identification with racial attitudes, the concept of Asian Pacific American racial/ethnic identity and its relationship to APA racial attitudes demands much more investigation. APA racial/ethnic identity development has been likened to the identity development of other minority groups (Atkinson et al., 1989). However, given the divergent immigration histories and multitudinous ethnic and cultural differences that encompass the Asian Pacific American racial classification, it is likely that a universal identity development model may not be wholly appropriate for Asian Pacific Americans. Once the process through which APA racial/ethnic identity develops is better understood, perhaps the relationship between racial/ethnic identity and racial attitudes can be examined more thoroughly. For example, this study does not explain *why* increased identity consciousness shapes Asian Pacific American students' views toward racial issues like affirmative action. Understanding this phenomenon may lead to better insights on how conceptions of the self influence the perceptions of others, and how, in turn, higher-education institutions can use this information to improve interracial relations.

This study represents an initial endeavor to understand the racial attitudes of Asian Pacific American college students by examining the influences of APA background characteristics, personal beliefs, racial/ethnic identity, and college experiences on their views toward affirmative action in higher education. Using concepts from sociological, social psychological, and the higher-education literature, the study's conceptual framework shows that Asian Pacific American students' racial attitudes are not influenced by any one single phenomenon, but instead are shaped by a myriad of intertwined structural, behavioral, and perceptual domains within the college environment. As higher-education institutions continue to struggle with how to best use their racial/ethnic diversity to enhance teaching and learning on their campuses, Asian Pacific Americans manifest the real complexity that shapes our multicultural American perspective on race, and they illustrate that any discourse on diversity must be inclusive in order to be effective in helping colleges fulfill their educational objectives.

APPENDIX A

Summary Statistics for Factor Scales in the Conceptual Framework

| Scale description and individual items | Factor Loadings | Alpha Reliabilities |
|---|---|---|
| Positive perception of climate for inter-racial interaction | | 0.764 |
| Extent of friendships between students of color and White students | 0.853 | |
| Extent of interaction between students or color and White students | 0.779 | |
| Extent of dating between students of color and White students | 0.598 | |
| Extent of trust and respect between students in different groups of color | 0.440 | |
| Extent of relationships and experiences among different racial/ethnic groups that promote in-depth learning from each other | 0.405 | |
| Dominant ideology: poverty fault of individual | | 0.736 |
| Poverty is attributable to lack of thrift/poor management | 0.889 | |
| Poverty is attributable to lack of effort by the poor | 0.889 | |
| Dominant ideology: wealth attributable to hard work/initiative | | 0.759 |
| Wealth is attributable to hard work and initiative | 0.898 | |
| Wealth is attributable to personal drive and willingness to take risks | 0.898 | |
| Support for affirmative action principles | | 0.675 |
| Continued racial and ethnic discrimination within higher education requires that universities aggressively remove institutional barriers that promote inequality | 0.611 | |
| By including multicultural perspectives in the curriculum, universities are fulfilling the real purpose of higher education | 0.578 | |
| Despite our concern over racial injustice, colleges and universities do not have a primary responsibility to correct the situation[a] | 0.440 | |
| Support for affirmative action practices | | 0.689 |
| Different admissions criteria with respect to SAT and ACT scores may be justified for some students of color | 0.694 | |
| A high priority should be given to see that students of color receive financial aid for education after high school | 0.639 | |
| The hiring of more faculty of color should be a top priority of this University | 0.624 | |

[a] Item was reverse coded before factor analysis and reliability testing.

## APPENDIX B

Means and Standard Deviations of the Measures in the Study's Conceptual Framework

| Measure | Mean | Std. Dev. | Description |
|---|---|---|---|
| Gender (female) | 1.45 | 0.50 | 1=male; 2=female |
| Fathers' highest education level | 5.74 | 1.42 | Coded from 1=1-8 years to 7=doctoral degree |
| Mothers' highest education level | 4.76 | 1.41 | Coded from 1=1-8 years to 7=doctoral degree |
| Generation status in U.S. | 1.72 | 0.52 | Recoded to 0=not a U.S. citizen; 1=1st generation; 2=2nd generation; 3=3rd generation |
| SAT score | 1207.67 | 133.09 | Continuous math + verbal measure from 500-1580 |
| Attending first choice college | 3.27 | 0.94 | Reverse coded to 1=4th or lower choice; 2=3rd choice; 3=2nd choice; 4=1st choice |
| Pre-test of affirmative action principles (1) | 3.39 | 0.67 | Reverse coded to 1=strongly disagree; 2=disagree; 3=agree; 4=strongly agree |
| Pre-test of affirmative action principles (2) | 3.08 | 0.79 | Reverse coded to 1=strongly disagree; 2=disagree; 3=agree; 4=strongly agree |
| Pre-test of affirmative action practices | 7.01 | 1.72 | Scale index from 3-12, high value indicating strong agreement |
| Humanities/social sciences major | 1.34 | 0.48 | Recoded to 1=no; 2=yes |
| Exposure to diverse curriculum | 2.88 | 1.17 | Coded 1=not at all; 2=a little; 3=some; 4=quite a bit; 5=a great deal |
| Exposure to Univ-sponsored diversity programming | 2.50 | 1.04 | Coded 1=not at all; 2=a little; 3=some; 4=quite a bit; 5=a great deal |
| Asian-ethnic group involvement | 2.16 | 1.08 | Recoded to 1=not at all involved; 2=slightly involved; 3=somewhat involved; somewhat involved; 4=substantially involved |
| Informal conversations about diversity with friends | 3.48 | 1.07 | Coded 1=not at all; 2=a little; 3=some; 4=quite a bit; 5=a great deal |
| Positive perception of climate for inter-racial interaction | 12.18 | 2.70 | Scale index from 5-20, high value indicating perception of racial climate with high amounts of cross-race interaction |
| Dominant ideology: Poverty fault of individual (1994) | 2.01 | 0.46 | Scale index from 1-3, high value indicating that poverty is attributable to lack of individual effort/thrift |
| Dominant ideology: Wealth attributable to hard work/initiative (1994) | 2.47 | 0.39 | Scale index from 1-3, high value indicating that wealth is due to individual hard work and initiative |
| Extent think about APA identity (1994) | 2.31 | 0.94 | Reverse coded to 1=hardly ever; 2=once in a while; 3=fairly often; 4=a lot |
| Belief that APAs share common interests with Whites (1994) | 3.35 | 1.02 | Reverse coded to 1=much more different; 2=somewhat more different; 3=somewhat more similar; 4=much more similar |
| Support for affirmative action principles | 12.52 | 2.00 | Scale index from 7-16, high value indicating strong agreement |
| Support for affirmative action practices | 7.45 | 2.04 | Scale index from 3-12, high value indicating strong agreement |

## APPENDIX C

Direct, Indirect, and Total Effects of the Path Estimates in the Support for Affirmative Action Principles Model

| Variable | Standardized estimate | Unstandardized estimate | S.E. | Critical ratio | Sig. |
|---|---|---|---|---|---|
| Direct effects on: | | | | | |
| Humanities/social sciences major | | | | | |
| Gender | 0.29 | 0.27 | 0.07 | 3.81 | *** |
| Positive perception of climate for inter-racial interaction | | | | | |
| Humanities/social sciences major | −0.19 | −1.08 | 0.43 | −2.53 | * |
| Poverty fault of individual | | | | | |
| Humanities/social sciences major | −0.31 | −0.77 | 0.19 | −4.13 | *** |
| Support for affirmative action principles | | | | | |
| Gender (female) | 0.31 | 1.22 | 0.28 | 4.36 | *** |
| Positive perception of climate for inter-racial interaction | −0.20 | −0.15 | 0.05 | −2.82 | ** |
| Poverty fault of individual | −0.23 | −0.38 | 0.12 | −3.28 | *** |
| Indirect effects on: | | | | | |
| Positive perception of climate for inter-racial interaction | | | | | |
| Gender | −0.06 | −0.29 | 0.03 | −2.05 | * |
| Poverty fault of individual | | | | | |
| Gender | −0.09 | −0.21 | 0.03 | −2.75 | ** |
| Support for affirmative action principles | | | | | |
| Humanities/social sciences major (through poverty) | 0.11 | 0.46 | 0.03 | 2.51 | * |
| Humanities/social sciences major (through climate) | 0.11 | 0.46 | 0.02 | 1.81 | |

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

## APPENDIX D

Direct, Indirect, and Total Effects of the Path Estimates in the Support for Affirmative Action Practices Model

| Variable | Standardized estimate | Unstandardized estimate | S.E. | Critical ratio | Sig. |
|---|---|---|---|---|---|
| Direct effects on: | | | | | |
| Informal conversations about diversity with friends | | | | | |
| Exposure to University-sponsored diversity programming | 0.36 | 0.38 | 0.08 | 4.90 | *** |
| Positive perception of climate for inter-racial interaction | | | | | |
| Humanities/social sciences major | −0.20 | −1.16 | 0.44 | −2.63 | ** |
| Exposure to University-sponsored diversity programming | 0.11 | 0.29 | 0.21 | 1.38 | |
| Poverty fault of individual | | | | | |
| Humanities/social sciences major | −0.28 | −0.72 | 0.19 | −3.73 | *** |

APPENDIX D (*Continued*)

| Variable | Standardized estimate | Unstandardized estimate | S.E. | Critical ratio | Sig. |
|---|---|---|---|---|---|
| Extent think about APA identity | | | | | |
| Informal conversations about diversity with friends | 0.31 | 0.28 | 0.07 | 4.21 | *** |
| Positive perception of climate for inter-racial interaction | –0.25 | –0.09 | 0.03 | –3.46 | *** |
| Support for affirmative action practices | | | | | |
| Generation status (born in US) | –0.10 | –0.39 | 0.27 | –1.46 | |
| Informal conversations about diversity with friends | 0.14 | 0.27 | 0.14 | 1.94 | |
| Positive perception of climate for inter-racial interaction | –0.18 | –0.13 | 0.05 | –2.49 | * |
| Poverty fault of individual | –0.32 | –0.55 | 0.12 | –4.77 | *** |
| Think often about APA identity | 0.24 | 0.50 | 0.16 | 3.19 | *** |
| Indirect effects on: | | | | | |
| Extent think about APA identity | | | | | |
| Humanities/social sciences major | 0.05 | 0.10 | 0.03 | 2.04 | * |
| Exposure to University-sponsored diversity programming (through (informal conversations) | 0.08 | 0.08 | 0.04 | 3.15 | ** |
| Exposure to University-sponsored diversity programming (through climate) | 0.08 | 0.08 | 0.02 | –1.24 | |
| Support for affirmative action practices | | | | | |
| Humanities/social sciences major | 0.14 | 0.60 | 0.03 | 2.90 | ** |
| Exposure to University-sponsored diversity programming | 0.05 | 0.11 | 0.28 | 1.76 | |
| Informal conversations about diversity with friends | 0.07 | 0.14 | 0.03 | 2.51 | * |
| Positive perception of climate for inter-racial interaction | –0.06 | –0.04 | 0.03 | –2.30 | * |

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

## Note

[1] An anonymous reviewer observed that the aggregate category of humanities and social science majors includes a broad range of disciplines, which may mask differences among various individual majors. For example, this grouping includes both sociology and economics majors, who most likely have dissimilar beliefs about the structure of opportunity in American society. Given the small size of the APA sample (n=184), the major categories had to be aggregated for multivariate analysis; however, this reviewer's observation is duly noted as a limitation of the study.

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Christine A. Ogren

# Rethinking the "Nontraditional" Student from a Historical Perspective

## State Normal Schools in the Late Nineteenth and Early Twentieth Centuries

Since the mid-twentieth century, a host of political, economic and societal changes have contributed to the diversification of students in American institutions of higher education. Developments such as the Allied victory in World War II, the decrease in blue-collar jobs, and changing gender attitudes, have encouraged members of minority racial groups, young people with low social-class standing, and women to attend college (Bean & Metzner, 1985). Beginning in the 1960s, governmental and institutional financial-aid and affirmative-action policies explicitly promoted racial, class, and gender diversity for the first time. Not surprisingly, researchers have recently begun to assess the impact of these programs and the implications of an increasingly diverse student body (see Levine & Associates, 1989; Levine & Nidiffer, 1996; London, 1992; Pascarella & Terenzini, 1998; Westbrook & Sedlacek, 1991), using the term "nontraditional" to describe students who are older than typical college students, work because of financial necessity, belong to the first generation in their family to attend college, do not live on campus, attend part-time, or are members of minority racial groups. Bean and Metzner (1985) add, "Nontraditional students are distinguished by the lessened intensity and duration of their interaction

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with the primary agents of socialization (faculty, peers) at the institutions they attend" (p. 488).

The term "nontraditional" implies that these atypical students are new to higher education and that colleges and universities traditionally have not served people like them. While the intention of research on nontraditional students is to better meet their needs, it may also have the unintended consequence of reinforcing the notion that these students are out of place, indirectly discouraging them from interacting with others on campus. One way to soften the effect of this research would be to emphasize atypical students' rich history in higher education. Indeed, historical research indicates that, even without the encouragement of explicit governmental and institutional policies, students from unsophisticated, lower-social-class backgrounds have a long tradition of attending American colleges and universities (see, for example, Allmendinger, 1975; Nidiffer, 1999). While generations of nontraditional students have attended virtually every type of higher education institution, they were especially prominent at the precursors of many state colleges and regional universities. S. Y. Gillan, who graduated in 1879 from one of these institutions, Illinois State Normal University, reflected that it "was a school of the people existing for and representing the masses and not the classes."[1]

This article focuses on state normal schools, which resulted from nineteenth-century education reformers' efforts to adapt the German teacher seminary and the French *ecole normale* to train teachers for the growing system of American common schools. Massachusetts established the first state normal schools in 1839, and Connecticut and New York soon followed. By 1870, 39 state normal schools were located in New England, the mid-Atlantic states, the Midwest, and California. During the following decades, southern states established segregated normal schools, and the institutions spread throughout the country and its territories; by 1920, there were more than 180. State normals, which provided elementary-level teacher certification and offered various degrees in pedagogy, were low-status institutions of higher education during a time when the lines between "higher" and "lower" education were blurred (Clifford, 1995, pp. 3–6).

By the end of the nineteenth century, many states began to look to the normals to prepare teachers for burgeoning positions on high-school faculties, which the normals saw as an opportunity to gain prestige. During the 1890s, the schools in Albany, New York, and Ypsilanti, Michigan adopted the name, "normal college." As other normals began to offer four years of college work and grant bachelor's degrees, they usually replaced the title "normal school" with "teachers college." The majority of state normal schools became teachers colleges during the 1920s and 1930s. In the 1940s, the flood of World-War II veterans seeking all-purpose higher education fueled the normals' quest for status, and they began to drop teacher education as their organizing purpose. As a result, the 1940s, 1950s, and 1960s witnessed another flurry of name changes as the former normals added more prestigious programs and became state colleges. By the end of the century, continuing "mission creep" (Selingo, 2000) allowed many to become state universities; institutions that began as normal schools formed the nucleus of state systems from New York to California, and former normals make up the majority of regional universities from Northern Michigan to Southwest Texas.

Although institutions whose roots are nineteenth-century normal schools play a central role in mass higher education at the turn of the twenty-first century, their story is not well known. In their quest for higher status, former normals have tended to bury their history as "an impoverished past thankfully left behind" (Goodlad, 1990, p. 73). Meanwhile, historians of higher education have concentrated on more elite institutions, and historians of teacher education have focused on the normal schools' leaders and official policies. These historiographical approaches virtually ignore normal-school students. (For the few exceptions to this rule, see Burke, 1982; Herbst, 1980; Herbst, 1989; Clifford, 1983; Clifford, 1995; Ogren, 1995; and Schwager, 1987.) Focusing explicitly on the normalites, I conducted extensive historical investigations of more than half of the state institutions that began as normals throughout the United States. I did archival research at seven campuses—in Castleton, Vermont; Geneseo, New York; Florence, Alabama; Pine Bluff, Arkansas; San Marcos, Texas; Oshkosh, Wisconsin; and San Jose, California—and reviewed various sources on close to one hundred other former normal schools. These sources include institutional histories, which I used selectively; like Frederick Rudolph, I "carefully culled episodes and illustrations" (Thelin, 1990, p. xviii) to use as primary material for my own analysis.

This article presents a socio-historical analysis of the students who attended state normal schools and their experiences in the late nineteenth and early twentieth centuries. I profile "normalites" relative to the portrayal of nontraditional students in current literature. Then, I discuss the ways in which the state normal schools provided a meaningful higher education experience. While their official mission was preparing teachers, the characteristics of their student bodies forced the normals to expand their unofficial mission to include welcoming unsophisticated students into an engaging intellectual and public life. Indeed, "it was the normal schools . . . that really brought higher education to the people"

(Herbst, 1989, p. 142; see also Herbst, 1980). Although the normal schools' specific approaches to serving these students were more appropriate for their time than the present, it is important for current researchers to understand that these institutions did serve atypical students effectively. As student bodies continue to diversify in the twenty-first century, it is helpful to take a look through the lens of history at earlier nontraditional students.

## *Nontraditional Students*

My in-depth examination of state normal schools reveals that their students had much in common with today's nontraditional students. Race (Westbrook & Sedlacek, 1991) and socioeconomic status (Lace, 1986) are prominent issues in literature on nontraditional students. Bean and Metzner (1985) acknowledge that these characteristics, along with gender, "might have differentiated traditional and nontraditional students a century ago" (p. 488). A look at the normalites convincingly confirms this hunch. At a time when women were an unwelcome minority on many coeducational campuses, they were a visible majority at state normal schools. A small number of normals, mainly in the South, restricted their enrollment to women only. But most normal schools were coeducational, with enrollments made up increasingly of women with each passing decade. Before the turn of the twentieth century, the enrollments at coeducational normals nationwide were between 25 and 90% female. At coeducational southern normals, only one-quarter to one-half of the students were women. Typical of normals outside the South, the institutions in Cedar Falls, Iowa, and Greeley, Colorado enrolled 70% women. After the turn of the century, throughout the country the percentage of students who were women was consistently well over 50, and occasionally higher than 90%.[2] The large numbers of female normalites are consistent with the schools' official mission of preparing students for the female-dominated profession of teaching.

In addition to women, state normal schools made higher education available to a significant number of students from minority racial and ethnic groups. Like Arkansas, which established the Branch Normal College at Pine Bluff euphemistically "for the poorer classes," most southern states established segregated normal schools for African-American students. Oklahoma and North Carolina also established segregated normal schools for Native American students.[3] In addition, evidence suggests that several northern, majority-white normals served at least a limited number of minority students. In New York, Albany matriculated twenty-six Native American students in the late nineteenth century and many South-European, Polish, and Jewish immigrants in the early twentieth century, and Oswego graduates of the 1890s remembered "an amiable American Indian girl," "popular young men from the Hawaiin Islands," "a shy, quiet Negro girl," and a "much respected" African American man. African American students, many of whom were from the South, had begun appearing at state normals from Westfield, Worcester, and Framingham, Massachusetts, to Normal, Illinois, soon after the Civil War. The normal schools in Pennsylvania welcomed several students from Puerto Rico and South America beginning in the 1890s, and Cecil E. Evans, who began his presidency at Southwest Texas State Normal School in San Marcos in 1911, once noted, "Very few Mexican students ever get high enough in the grades to reach us," implying that at least a few Mexican students did "reach" the institution.[4]

Regardless of their race or gender, most normalites shared rather low socioeconomic status; they were, for the most part, the daughters and sons of working people, many of whom were struggling financially. Throughout the late nineteenth century, skilled, semiskilled, unskilled, and agricultural workers headed the homes of two-thirds of normalites in Massachusetts. The normal in Worcester reflected the growing industrial city, drawing primarily the children of skilled workers and laborers. During the first decade of the twentieth century, Southwest Texas kept very detailed records of the occupations of its students' parents. Only 6% engaged in the professions of medicine and law; physicians, lawyers, teachers, ministers, druggists, engineers, editors, "newspapermen," and architects amounted to only 14%. The parents of San-Marcos students were more likely to work in agriculture than any other trade: 47% were farmers, and ranchers, fruit growers, stockmen and dairymen were another 10%. In fact, farming, which was in economic crisis throughout most of the late nineteenth and early twentieth centuries in the United States, shaped the lives of a majority of normalites. During the late nineteenth century, nearly two-thirds of students at Cedar Falls, Iowa, were from farming families. Likewise, in 1889, the parents of 428 of the 639 students at Emporia Kansas, were farmers. Students at Pine Bluff often had to arrive at school late in the fall and leave early in the spring, in order to help their families with harvests and plantings.[5]

The families of many normal-school students could not afford traditional higher education. For example, George Martin graduated as valedictorian of his Massachusetts high-school class in 1855 and was unable to fulfill his plan to attend Amherst College because of a lack of funds. Martin then worked for seven years and was finally able to enter Bridgewater Normal in 1862. Some normalites were from such impoverished backgrounds that the schools gained a reputation for serving the poor. A

Vermont newspaper described the normal in Castleton as catering to the "calico-attired country girl of limited means," and in Westfield, Massachusetts, where the normal school enrolled an especially high number of children of small farmers, "normal" was a disparaging name for a poor person. Similarly, some residents of Oswego, New York, referred to normalites there as "state paupers." Pine-Bluff students made light of their reputation in the following lines from a late-1920s school cheer: "State School, State School, yes we are the state school / Nothing new or formal, no Sir! / Our hair is shaggy and our clothes are baggy / But they'll soon be raggy, Yea!" Throughout the country, many normal-school students could have yelled along.[6]

In addition to being female, minorities, or of low socioeconomic standing, today's nontraditional students often are older than the typical eighteen to twenty-two years (Bean & Metzner, 1985; Bendixen-Noe, 1998; Lace, 1986; Metzner & Bean, 1987; Pascarella & Terenzini, 1998; Zwerling, 1992). Although Bean and Metzner do not acknowledge it, this is another factor that also differentiated traditional and nontraditional students in the late nineteenth and early twentieth centuries. Many normalites—as well as some students at colleges and universities—were mature in age. Throughout the country, most normal-school students were older than the minimum state-stipulated fifteen or sixteen years. Michael Dignam, who graduated in 1882 from Westfield, Massachusetts, remembered, "The pupils were all mature, no one under 20; the ages ranged as high as 26 or 28." A member of the class of 1888 at Oshkosh, Wisconsin lyrically explained: "In age the class varies all the way from the blushing maiden in her teens, filled with anticipation of the future, and the aspiring youth yearning for independence, to the retrospective and reflective minds of maturer years." From Oneonta, New York to Greeley, Colorado, normal schools in the late 1880s and early 1890s reported that on average their entering students were more than 20 years old. In 1886, the first class at Tempe averaged 19.4 years in age; at 26 and 30 years old, respectively, Julia A. McDonald and James M. Patterson were among the oldest students. When the all-female state normal in Greensboro, North Carolina opened in 1892, the average age of entering students was close to 20 years. Throughout the 1890s and 1900s, women students at Oneonta continued to enter at an average age of over 20 years, while their male classmates were closer to 22. In 1903, the first class at San Marcos signed in at 20.1 years, with one student who was 38 years old. The normal school in Plattsburgh, New York, had at least a couple of mature students during the 1910s—there were two mother-daughter pairs on campus.[7]

The literature on nontraditional students further characterizes them as part-time attenders and commuters (Bean & Metzner, 1985; Gilley & Hawkes, 1989; Lace, 1986; Metzner & Bean, 1987; Pascarella & Terenzini, 1998). At West Virginia's normal in West Liberty, some students commuted to campus in an effort to save money. Similarly, many normalites at the Territorial Normal School in Tempe, Arizona, during the decade or so after it opened in 1886, commuted. One male student later explained, "I rode horseback from Mesa to Tempe and returned each day, milked six cows morning and evening, and each morning had to run my horses down before I could go to Tempe. It took nearly 45 minutes to make the distance."[8] Aside from a few scattered examples, however, commuting from home was rare among normalites whose families didn't happen to live within walking distance of campus; after all, transportation was limited. There is no evidence that any students in attendance at a normal school attended part-time. Looking at the normalites serves as a reminder, though, that attending part-time and commuting are not intrinsic personal characteristics in the way that age, race, class, and gender are. Present-day students attend part-time and commute *because* they cannot afford to attend full-time or live on campus and/or their family or life commitments prohibit them from devoting themselves exclusively to the pursuit of higher education. Normalites clearly shared the personal traits that create the special conditions of attendance for today's nontraditional students, but they lived under different historical conditions. Thus, although most were not commuters, many normalites, like today's nontraditional students, arrived with significant work experience and found it necessary to work while attending normal school.

Many state normal-school students had work experience, usually as teachers, prior to matriculation. As early as the 1840s and early 1850s at Bridgewater, "nearly all" of the students had themselves taught school. Of the 2,500 students who enrolled at Oswego between its opening in the mid-1860s and 1880, more than 1,000 had teaching experience, with an average of three years in the classroom. During the late 1880s, more than half of the students at Farmington, Maine arrived with teaching experience. Outside the Northeast, it was also very common for normalites to have work experience as teachers. At Oshkosh in 1879 as well as in 1884, half of the students had taught, and among them the average time spent in front of a class was 2.6 years. Between 1892 and 1908, the collective student body at Oshkosh averaged one year of experience. In their class histories, students conveyed the same idea a bit more creatively: The class of 1895 taught "more than a thousand months," and the brains of members of the class of 1896 bore "unsightly marks . . . caused by patient efforts to impress the American youth in our rural districts with the precept, knowledge is power." Nearly half of the normalites at Emporia, Kansas, in the late 1880s taught before entering the normal, many for five or more years. Tempe's Julia McDonald and James Patterson were former teachers, as were more than 34% of the students at Florence, Alabama, around the turn of the century.[9]

Many normalites worked while enrolled, and self-supporting students were not unusual at the state normals. In 1882, President Edwin Hewett of Illinois State Normal University reported, "Many of our students . . . are dependent upon their own exertions for means"; and a decade or so later Principal John Mahelm Berry Sill of the State Normal School in Ypsilanti, Michigan, said, "Our students are working young men and women who earn their little money by the hardest toil." Just after the turn of the twentieth century, one-third of the students at Florence "earned their own money to pay expenses," while Oregon's State Superintendent of Public Instruction expressed concern about the large numbers of "self-supporting" normalites, urging, "Greater precaution must be exercised to prevent the ambitious from overworking than to rouse the sluggards." Gender often determined the term-time jobs normalites were able to find: in New York, female students at Oneonta worked as babysitters or maids, while male students at Oswego shoveled snow, sold various products, or worked as janitors.[10] Throughout the country, it was common for normalites to take leaves of absence to earn the necessary money to continue their education, an earlier approach to being a part-time student. Most often, they taught in rural schools for one or more terms before returning to normal school. For example, a student at Nebraska's Peru State Normal School in 1873 soon found himself short of money. He later remembered:

> My graduation looked far off to me and my limited means made it necessary to quit school for a while and return to the farm. But Dr. Curry, then principal, learning my predicament found me a country school in Otoe county that enabled me to return again after I had finished my school. This I continued to do, alternating between teaching and going to school until I finally graduated in the spring of 1879.[11]

Like today's nontraditional students, normalites found ways to overcome their financial limitations.

Although work experience as well as age must have fostered a certain level of maturity among normal-school students, they were hardly worldly-wise. In fact, socio-historical examination of normalites reveals that many were quite provincial, or lacked sophistication. This significant characteristic is curiously absent from the literature on nontraditional students, but it is unmistakable in accounts of the normal schools. A chronicler of Bridgewater State Normal School observed, "It is hard for us to conceive how provincial these students were. Most of them had never been far from their own towns. . . ." Sarah A. Dixon, who graduated from Bridgewater in 1885, called herself "a sip of a girl from an isolated shore home." Throughout the country, normalites were predominantly from very small, often very rural, towns and villages. At Arkansas' Branch Normal College for black students, the vast majority of students were from the rural areas surrounding Pine Bluff. Between the 1880s and the 1900s, 23 to 30% of all Oshkosh, Wisconsin, students hailed from Oshkosh, which was a booming lumber town. Another 8% or fewer of the students came from other lumber towns in the area, and only a few hailed from the bigger cities of Milwaukee, Madison, and, occasionally, Chicago. More than half of the students were from much smaller, rural towns. The 1890s football cheer for the normal in Geneseo, New York, included a line that would also have suited most other normals: "We came to the gridiron fresh from verdant farms." Meanwhile, many of the students at California's state normal in Chico were from very remote mountain settlements in the northern part of the state. When they arrived at the normal, Chico was the largest town they had ever seen.[12]

It is hardly surprising that students from such remote areas tended to be unpolished. For many years after the 1868 establishment of the state normal in Peru, the many students there who had lived "isolated lives" tended to be "ignorant of the social ways incident to more thickly settled portions of the country; hence, they sometimes appeared reserved and awkward." A student at Peru in the late nineteenth century remembered, "Girls with brown faces and plain clothing" and "boys with calloused hands." Early in the twentieth century, the principal at Willimantic, Connecticut, complained, "Many of our students are crude. Their manner of talking, their table manners, their actions often show a decided lack of culture."[13] Sensitive to the implied class prejudice, present-day administrators and researchers would hesitate to make observations such as these. Nontraditional students likely have similar rough edges, however, and a non-pejorative understanding of their provincialism might be an important step toward serving them more effectively. While the normalites' lack of sophistication frustrated Willimantic's principal, it also made them hungry for inspiration. For example, an Oshkosh student declared:

> When one for the first time beholds an imposing structure, whether reared by man's stalwart arm or nature's majestic art, impressions are made upon the delicate parchment of the mind which age can not dim nor time obliterate. Such is the character of my first impressions on beholding the Oshkosh Normal. Its architectural symmetry symbolizes the noble educational system in

> which it forms an important factor; . . . its spacious assembly room and its commodious recitation rooms silently insinuate to the pupil the possibilities of mental expansion, while each high ceiling proclaims the aphorism, "There is always room at the top."[14]

Attendance at state normal schools was a significant departure in the theretofore unsophisticated lives of many students. As the next section explains, the state normals not only accepted students from nontraditional backgrounds, but they also engaged their sense of awe to create an atmosphere that embraced them.

### *Embracing Nontraditional Students*

This examination of state normal-school students has suggested that the types of students now considered to be nontraditional were prominent in the late nineteenth and early twentieth centuries on state normal-school campuses. A century later, researchers have reported on—and forecasted further—demographic changes in higher education. To meet this challenge, Arthur Levine has called for "better serving the underserved" (Levine & Associates, 1989, p. 172), and much of the literature on nontraditional students is concerned with how to do this (see, for example, Astin, 1993; Gilley & Hawkes, 1989; Lace, 1986; Richardson & Skinner, 1992). It might also be useful for current administrators, as well as researchers, simply to understand that they are not pioneers in their efforts to welcome atypical students to college campuses. State normal schools hardly "underserved" these students, but instead enabled them to take advantage of an engaging intellectual life and to become involved in public life, which encouraged them to move far beyond their humble backgrounds. Normal-school administrators and faculty members' first step, more than a half-century before government programs designed to bring underprivileged students into institutions of higher education, was to ensure that the normals were accessible and affordable for all students.

Admission requirements at state normal schools were fairly loose and somewhat flexible. They did not require matriculants to be high-school graduates until education at that level was attainable by most residents of their states, which generally was not until the early twentieth century. Before they required high-school graduation, normal schools administered admission examinations, but prospective students could present teaching credentials or diplomas instead of sitting for them. Previous years' exams were often published in normal-school catalogues, making them available to students preparing for future admission. In the late 1870s, San Jose, California published questions in arithmetic, grammar, geography, and spelling for admission to the junior class and additional questions for admission to the "middle" and senior classes. Applicants to Oshkosh, Wisconsin, during the 1880s had to score 70% or better in reading and spelling, arithmetic, grammar, geography, and U.S. history. In Vermont, Castleton's admission exam in the early 1890s covered spelling, arithmetic, physiology, grammar, geography, Vermont history, U.S. history, and civics.[15] In addition to academic qualifications, other admission requirements were fairly easy to acquire. Applicants had to be 15 or 16 (or 14, at Pine Bluff, Arkansas) years in age, and usually of good "moral character" and health, presumably as prerequisites for being good teachers in the future.[16]

In addition to setting fairly easy standards for admission, many state normal schools assured accessibility by providing detailed directions to campus and individual assistance with settling in. Many normal schools did everything short of printing train schedules in their catalogs. For example, an Oshkosh catalog described the "numerous lines of railroad and river steamers entering the city, as well as its favorable location." Similarly, a bulletin for the normal in Florence, Alabama, explained that the "main line of the Southern Railway from Chattanooga passes through Sheffield, and all passenger trains are met there by electric cars which deliver passengers in Florence in about twenty minutes."[17] After careful instructions helped many students reach campus, the administration—which often consisted solely of the president or principal—literally reached out to individual new students. During the 1870s, 1880s, and 1890s, Oshkosh's Principal George Albee helped each new student get situated and plan a course schedule. The 1907–1908 Geneseo, New York, catalog declared, "Students both old and new are urged to consult the Principal freely regarding their work and their plans for the future." Clark Davis, who attended Ypsilanti State Normal School in Michigan, remembered that upon arrival in Ypsilanti, "I made my first call upon the man whom I had been writing—namely, President Jones. He treated me cordially and courteously, received me at his home, took me to his office, and walked over some of the city streets to show me rooming houses and boarding houses."[18]

While attainable admission requirements and approachable principals eased many students' adjustment to normal school, probably the most important factor in accessibility was affordability. Most state normal schools charged a modest tuition, which they waived for students who signed a pledge to teach in the state after graduation, usually for no more than a few years. The 1879 catalog for Bridgewater, Massachusetts, explained: "Tuition is free to all who comply with the condition of teaching in the schools of Massachusetts." Such contracts were in the states' interest because they increased the teacher supply, but tuition waivers also made a normal-school education affordable for many students. Those who signed pledges to teach had only to buy or rent books, and pay for supplies, transportation, room, board, and perhaps activities fees or music lessons. And at many institutions, financial help from the state was also available for these expenses. The Bridgewater catalog also explained: "The State makes an annual appropriation . . . which is distributed at the close of each term among pupils from Massachusetts who merit and need the aid, in sums varying according to the distance of their residences from Bridgewater."[19] Similarly, during the 1880s the state of Kansas began to reimburse Emporia students three cents per mile for travel beyond one hundred miles; and until 1897, Geneseo students who signed the declaration to teach received reimbursement for travel costs. Ypsilanti's Principal Sill persuaded the state legislature to provide free textbooks, arguing that "the cost of books is often 'the last straw that breaks the camel's back.'" In other states, government officials were directly involved in granting subsidies. Beginning in 1897, each member of the Alabama legislature was able to nominate a student for a two-year normal-school scholarship, which covered tuition and incidental fees; those students appointed by senators also received a grant for boarding costs. Between 1903 and 1909, normalites in Texas could also earn "scholarship appointments," which covered boarding costs, through appointments by their senators, congressmen, or even the governor.[20]

Increasing numbers of campus scholarships and loan funds helped normal students pay expenses that the state did not cover. As early as 1878, Pine Bluff, Arkansas, had an "honorary scholars" program, which provided scholarships for students who passed an exam. For many years beginning in 1882, the Nashville-based Peabody Fund provided for sixteen annual scholarships at Florence, and additional scholarships at other southern normals. Fairly widespread by the early twentieth century, institution-based scholarships were usually funded by and named for former faculty members or graduating classes.[21] If all else failed, the personal efforts of principals and faculty members occasionally enabled individual students to overcome remaining financial obstacles. Long-serving principals, such as Edward Sheldon at Oswego, New York (1861–1897), Percy Bugbee at Oneonta, New York (1898–1933), Cecil Evans at San Marcos, Texas (1911–1942), E. E. Smith at Fayetteville, North Carolina (1883–1933), and many others lent their own money to students in distress. Smith and Pine Bluff's Joseph Corbin (1875–1902), both principals of all-black normal schools, were purposely lax in collecting tuition and fees from students they knew to be struggling; Smith also accepted farm products in lieu of currency.[22] These individual efforts, which filled some of the cracks between state-sponsored tuition waivers and subsidies, as well as campus scholarships and loan funds, helped to make normal schools affordable—so affordable that, during the early 1910s, Geneseo catalogs included the assurance that "no worthy student ever leaves Geneseo because of lack of funds with which to complete the course."[23]

Beyond assuring that students from atypical backgrounds enjoyed easy access, state normal schools offered an atmosphere in which these students thrived. The literature on today's nontraditional students stresses "academic integration" (Metzner & Bean, 1987, p. 30), or "incorporation or support of the students' needs" in "a new, stronger academic community" (Gilley & Hawkes, 1989, p. 34; see also Astin, 1993). Another important issue is scale: the smaller the scale of the institution as a whole or designated programs within it, the higher the comfort level of nontraditional students (Richardson & Skinner, 1992). Most normal schools were small in scale, but size was only one factor in an atmosphere that embraced students from "underserved" backgrounds. Their needs subtly yet ubiquitously shaped these institutions in such a way that serving them was simply intrinsic to the normals' strong academic community. Without special services or programs aimed at nontraditional students, normal schools offered them a comfortable and inclusive intellectual life and numerous opportunities for leadership and involvement in public life. Indeed, state normal schools played a "total adult socializing" (Bean & Metzner, 1985, p. 488) role in the lives of their students, suggesting an alternative to the notion that nontraditional students are "not greatly influenced by the social environment" (Bean & Metzner, 1985, p. 489) in institutions of higher education.

State normal schools created a lively and challenging intellectual life for all students. The bedrock of a strong academic community, the formal curriculum constructively recognized students' limited background and helped them reach further. The normal principals and faculties found that many of their students, especially before the turn of the twentieth century, arrived with little more than an elementary-level education. Because they sought to prepare well-rounded teachers, the normals began from where the students' prior education left off, offering basic and more advanced studies in academic disciplines as well as teaching methods. All students focused on a core of academic studies in mathematics, the sciences, history and civics, and English and language arts. The normals' approach to teaching these subjects allowed students comfortably to gain a certain amount of high-status knowledge.

Western culture wove its way through the required curriculum. Beginning with Greece and Rome, historical studies covered the highlights of

Western civilization. In 1894, for example, the catalog for Westfield Normal School in Massachusetts explained that the "General History" course included "Europe from the beginning of the Middle Ages to the present time." Bridgewater imported from London "casts, models, and flat copies" of great art works. The aspect of Western culture that occupied the largest part of the required curriculum was what the normal in Willimantic, Connecticut, called, "The best literary works." There, according to the 1890 catalog, the English literature course covered "Dickens to Burns" during the second term, "Burns to Bacon" during the third term, and "Bacon to Chaucer" during the fourth term. Shakespeare was ever-present on normal-school reading lists; at Westfield, students read *The Merchant of Venice*, *Julius Caesar*, *Hamlet* or *Macbeth*, as well as a comedy. In addition to English literature, students at Bridgewater studied American poets and writers such as Longfellow, Whittier, and Hawthorne. Modern and ancient languages were generally optional studies, but institutions as diverse as Castleton, Pine Bluff, and the Territorial Normal School in Tempe, Arizona, required Latin.[24]

Through both required and elective subjects, normal-school students also immersed themselves in another passion of the middle and upper classes in the late nineteenth century: the natural sciences. Between the 1870s and the 1900s, virtually all normal students took short courses in physiology, geography, botany, and natural philosophy (called nature study after the turn of the century), as well as at least a few of the following subjects: geology, mineralogy, chemistry, zoology, physics, and astronomy. Together, they performed physical and chemical experiments with rudimentary apparatus, dissected animals, and undertook field expeditions to study local land forms and flora. In keeping with the late-nineteenth-century zeal for scientific collecting, many normal schools amassed sizable collections of mineralogical, geological, physiological, zoological, and even entomological "specimens." For example, beginning in the 1860s, the state normal in Winona, Minnesota, had a growing collection of fossils and minerals from quarries and railway cuts. In 1875 the school purchased a collection of "minerals, fossils, casts, corals, sponges, and shells," which also contained "the partial remains of a Mastodon skeleton." By the 1880s, the normal's museum of natural history also had a bird collection. Science instruction and collections not only enabled students to study fossils, minerals, and animals, but also invited them to share the passion for science.[25]

While the normal schools' formal curriculum established a comfortable academic community, activities outside the classroom strengthened it, intensifying students' intellectual socialization. By the 1870s and increasingly each year thereafter, normal students founded and participated in countless societies, clubs, and publications. These organizations contributed to the vibrant campus intellectual life, which enabled students to grow immensely through intense interaction with one another, their professors, and campus visitors. Academic clubs focused on a variety of topics, primarily in the sciences and foreign languages, and tended to be fairly short-lived. Other student organizations, as well as visiting speakers and performers, exposed students to areas of high culture that were generally outside the formal curriculum, especially classical music and art history.

But it was the literary societies, by far the most long-lived, popular, and far-reaching student organizations, that most facilitated the involvement of these nontraditional students in the life of the mind. Societies met weekly or biweekly, usually on Friday or Saturday afternoon or evening, to execute well-planned programs of orations, debates, moderated discussions, skits, and musical entertainment. In San Jose, the State Normal School's 1900 catalog reported, "The purpose of these societies is to acquaint their members with the customs and practices of deliberative bodies, to give an impetus to literary investigation, and to develop a talent for literary pursuits, public speaking, and extemporaneous discussions." Meetings were occasionally open to the public, and "joint meetings" between two societies were quite common; one at San Jose in 1887 drew over 400 spectators. At the state normal in Greeley, Colorado, the two literary societies were great rivals, and competed each spring in oratory, essays, and debate in the town's Opera House before a large audience. In the South and the East, where social mores were generally traditional, literary societies were usually single-sex. In a unique arrangement, New York's normal schools housed branches of statewide societies. Those for women included Clionian, Arethusa, Alpha Delta, and Agonian; and those for men included Delphic and Philalethean. Gender segregation was less rigid in the Midwest and West. The Lyceum, Literati, and Belles-Lettres societies at Emporia were all coeducational, as were the Roosevelt, Sophoclean, and Emersonian societies at New Mexico Normal University in Las Vegas. Throughout the late nineteenth and early twentieth centuries, the majority of normalites belonged to literary societies. Beginning in the late 1880s, some normals, such as those in Tempe, Arizona, and Cedar Falls, Iowa, had the added incentive of earning credit for society work. A few normals, such as Illinois Normal University, and Oklahoma's Southwestern State Normal School, required membership.[26]

Literary societies enabled students to further pursue some of the topics covered in the curriculum. The main focus, of course, was literature; societies regularly studied a variety of British and American authors.

The Browning clubs at Florence and Oshkosh were named for Elizabeth Barrett Browning, a favorite among their members, just as the Shakespeare(n) societies at Cedar Falls, San Jose, and San Marcos were named for the great playwright. Other popular British authors included Charles Dickens, Jane Austin, and Alfred, Lord Tennyson. Studies of the poetry and prose of John Greenleaf Whittier, Henry Wadsworth Longfellow, Washington Irving, Ralph Waldo Emerson, and Mark Twain, deepened students' familiarity with American literary culture. San Marcos' Every Day Society declared Irving its "patron saint," and imitated him in the 1909 yearbook, presenting a supposed "unpublished tale" in which a lost hunter dreamt of "the girls of the land where the sweet peas grow," who were suspiciously similar to Every-Day members. In many literary societies, students also explored great literature by performing it. At Oneonta, for example, various societies staged Tennyson's *The Princess* in 1892, Shakespeare's *As You Like It* and *The Merchant of Venice* in 1901, and Dickens' *Tom Pinch* in 1905.[27]

Perhaps the most clear illustration of how the normals' academic community allowed students comfortably to broaden their horizons is the societies' vicarious travels throughout the United States and the world. In 1876, members of the Normal School Philologian Society at Westfield enjoyed "an illustrated lecture. . . . An Account of his (Mr. Diller's) Geological Vacation . . . up the Valley in the State of New York." In 1899, "Miss Dopp favored" Oshkosh's Phoenix "society with some of her experiences among the Mormons in Salt Lake City." A decade or so later, a program entitled "Travels in the West" took Florence's Dixie society, figuratively, to Salt Lake City and Yellowstone National Park. Students' vicarious travels also took them to Europe and more foreign locales. In 1880–1881, one literary society at Oshkosh studied Spain and Germany, and in other years both San Marcos' Comenian and Oshkosh's Phoenix studied China. The normal students' world shrank as they acquainted themselves with many distant regions. Together, the literary societies and the formal curriculum created an atmosphere that welcomed normalites into a new intellectual world. Burtt N. Timbie, Bridgewater '96, remembered, "These were years of mind and soul awakening. We came to love learning for learning's sake."[28]

Normalites' socialization was not limited to academic areas; as complete socializing institutions, state normal schools also enabled students to refine the way they carried and presented themselves. The formal curriculum required all students to polish their style of written and oral expression. Rhetoric, composition, and declamation were curricular staples. Through these and other classes, the normals sought to provide "practical training in the correct and effective use of our mother tongue" and "cultivate the individual student's powers of expression in both oral and written language." Students honed their powers of expression through numerous writing assignments, as well as public speaking requirements. Most normal schools required each student to present some sort of schoolwide public declamation at least once, but often on a weekly or monthly basis. For example, "Friday Afternoon Exercises" began at Geneseo in 1877; for the next few decades, classes took turns presenting programs of essays, readings, and recitations. At most normal schools, commencement addresses by all or some of the graduating students, depending on the size of the class, were the culmination of terms of work.[29]

Literary societies also focused on refining their members' styles of expression and composition. Students wrote and delivered orations and essays on different subjects from week to week. Several of the all-male groups, such as The Normal Congress at Bridgewater and The Standard Society at Buffalo, focused on parliamentary procedure. A debate was usually the focal point of the literary society meeting; debating fostered poise, precision, and accuracy in oral communication. In the Midwest, statewide and even interstate normal-school debate and oratorical contests were common and attracted large crowds. After Oshkosh's Elizabeth Shepard won the Wisconsin state contest with her speech on Ulysses S. Grant, her classmates reported, "For Grant when she spoke in electrical tones . . . She made the cold shivers run down our backbones." Buoyed by the normals' vibrant academic community, women commonly orated and debated in public in the Midwest and West, and occasionally in the East. When they did so, they ironically gained cultural polish while violating the gender conventions of high society. Society members also refined their writing skills by producing serial newspapers or magazines; many normal-school student publications began in the societies. Typical titles were: *Normal Thought*, published by the Standard Society at Buffalo; *Normal Ray*, published by the Baconian Literary Society at the State Normal School of Troy, Alabama; and *The Students' Offering*, which was a coordinated effort by all of the literary societies at Cedar Falls.[30]

Not only did the literary societies increase students' comfort with public speaking and writing, but they, along with class organizations and organized athletics, also fostered normalites' self-confidence as leaders and participants in public life. Students took advantage of multiple leadership opportunities. The societies, as well as organizations ranging from academic clubs to YW- and YMCAs all had student officers. By the 1880s, classes elected officers and, beginning in the 1890s, student government associations began to appear. Men served as presidents of coeducational organizations in numbers disproportionately greater than their representation on campus, but women did occasionally serve as president and often occupied other class offices. The constitution of the campuswide self-government association formed at Oshkosh in 1896 stipulated that each class would be represented by one woman and one man. When San Jose's Student Body in 1898 elected Harriet Quilty its first president, *The Normal Pennant* remarked, "Miss Quilty needs no further introduction to our students, her great abilities as a leader are known from Juniors to Seniors." Quilty and other normalites seized the unusual opportunity to serve in a leadership role.[31]

On the athletic fields and basketball courts, normalites gained further experience as public actors in a strong community. Physical activity was a long-standing part of normal life, and by the mid 1890s, athletic competitions were quite prominent. Illinois Normal held its first annual field day in 1895, including running races, shot-put, discus and hammer throws, tennis, and bicycle races. In team sports, men participated in football as well as baseball and basketball, but the relatively small numbers of male students meant a relatively low profile for these intramural and occasional intercollegiate teams. Basketball was really the territory of female normalites, and it soon became wildly popular. Illinois Normal inaugurated intramural competition among women's teams in 1895, as did Ellensburg, Washington, where a local newspaper reported, "The ladies are getting to be splendid players." In 1902 Ellensburg's women players began interscholastic competition. Beginning at the turn of the century, women and men diversified their athletic endeavors to include sports such as tennis and hockey, but women's basketball continued to draw the most spectators. At Oshkosh, the men reported, "They did make plays and no mistake / Those girls in blue and yellow; / And to spur on the lusty crowd / We cheered them to a fellow." Along with improving their level of fitness, these athletes undoubtedly gained poise as they performed in a public setting.[32]

Finally, the broader social atmosphere of the normals was remarkably vibrant, prompting one observer to write that San Jose exuded "enthusiasm and mutual confidence." At the most formal level, students attended all sorts of anniversary celebrations and building dedications, which brought a sense of history and grandeur to campus. Usually spanning several days, graduation ceremonies generally included a baccalaureate sermon by a local minister, academic speeches by all graduates or student representatives of the senior class, and speeches by the principal or perhaps a visiting dignitary, as well as the ceremonial conferring of degrees. In addition, students created their own tradition of more- and less-formal events. In end-of-the-year "class day" celebrations, they took the stage to read the class history and prophesy and make other speeches. At Castleton in the late 1890s, celebrations included addresses to the juniors that offered advice as well as gentle gibes. From week to week, campus life was alive with other student-initiated events; all sorts of receptions and socials provided normalites with opportunities to grow more comfortable as public actors. At one such reception, sponsored by the YWCA at San Jose, a leader announced at regular intervals new conversation topics including "the last book I read," the weather, and even "women's sphere." This gathering, like countless others on normal campuses, was virtually a seminar on the mores of polite society. With so many opportunities to involve oneself in a robust and inclusive academic community, it is hardly surprising that the "sip of a girl from an isolated shore home" in Massachusetts described attending normal school as, "not unlike birth into another world."[33]

## *Conclusion*

State normal schools in the late nineteenth and early twentieth centuries not only welcomed women, members of minority groups, and students with other nontypical characteristics, but also included them in a rich intellectual and social community and encouraged them to reach beyond their unprivileged backgrounds. While the official mission of the normal schools was simply teacher preparation, the unofficial mission of serving nontraditional students was integral to these institutions. Reflecting on the later transformation of former normal schools into universities, E. Alden Dunham (1969) observed, "One of the ironies of this movement is that a first-class teachers college may become a third-class university as it grows and changes its function" (p. 1). Thus, in the search for status, the former normals gave up their distinctive identity, including the behind-the-scenes yet ground-breaking mission of serving nontraditional students. More than three decades ago, Dunham (1969) saw the "question of model, of institutional purpose" as "the greatest single problem" facing state colleges and regional universities, because they lost "institutional coherence, warmth, and friendliness" as "the atmosphere" changed "from soft to hard" (pp. 155–156). The new "hard" environment marginalized the needs of nontraditional students. Rethinking the notion of "nontraditional" from the historical perspective of state normal schools is an important reminder not only of atypical students' rich history in higher education, but also of what higher education institutions and society stand to lose in turning away from the mission—whether official or unofficial—of serving these students.

## *Notes*

[1] Gillan quoted in *Semi-centennial history of the Illinois State Normal University, 1857–1907*. Normal, IL: Illinois State Normal University, 1907, p. 202.

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[21] Chambers, Historical study of Arkansas Agricultural, Mechanical and Normal College, p. 80; Vaughn, The history of State Teachers College, Florence, p. 38; on scholarships, see catalogues and bulletins of individual normal schools.

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Carol A. Lundberg

# The Influence of Time-Limitations, Faculty, and Peer Relationships on Adult Student Learning: A Causal Model

Adult students are one of the most rapidly growing segments of today's college student population, making up approximately 40% of all college students (Chronicle of Higher Education Almanac, 1999–2000). While their numbers have increased, our understanding of the unique factors that predict adult student success have not increased likewise. The role of social integration is one that is especially unclear for adult students. Studies based on the experience of younger students consistently support the important role of social integration for student success (Astin, 1993; Pace, 1984; Pascarella & Terenzini, 1991; Pascarella, Whitt, Nora, Edison, Hagedorn, & Terenzini, 1996; Tinto, 1987, 1993). However, these studies are based primarily on the experience of white, middle-class students younger than 23 years old, so their relevance to adults and other nontraditional students may be limited. This limitation is especially salient for adults because their lives often contain multiple off-campus responsibilities and relationships that may limit their time available for investment in social relationships.

According to Astin's (1984, 1993) model of student involvement, activities that draw student-effort off campus have a negative effect on learning because these involvements leave students with less energy or time for campus involvement. Thus, the growing number of students who commute, work, and enroll part-time are at risk for learning less because these characteristics limit their time on campus. Adult students are likely the most time-limited group of the college student population;

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nearly all adults commute, most work, and many enroll part-time, leaving them with less time available for on-campus involvement (Kasworm, 1990b; Schlossberg, Lynch, & Chickering, 1989). However, because of the overlap among these variables, it is difficult to identify the effects of each specific variable. Differences related to adult students may be mistakenly attributed to age rather than to the unique combination of these time limitations. For the purpose of this study, "time-limited" students are students who have commitments off-campus such that their time available for campus involvement is limited. These are students who commute, enroll part-time, work over 20 hours off campus, or who are over 23 years old. These groups are time limited in terms of the time available for on-campus involvement.

Many studies of adults put them in the category of "nontraditional students" along with commuters, part-time students, students who work many hours, first-generation college students, and students of color (Bean & Metzner, 1985; Kasworm, 1990a, 1990b; Kasworm & Pike, 1994; Kuh, 1993, 1995; Metzner & Bean, 1987). This presents a broad picture of nontraditional students, but since there is some overlap of students in each group, unique features of each specific group's experience are masked. Further investigation is warranted to understand the way each of these nontraditional characteristics affects student success in college, particularly for adult students who most often attend college in a nontraditional way.

Studies of the effect on student peers on learning focused primarily on younger students have found that peers serve a vital educational function as they engage students more deeply in the college experience, thereby enhancing their learning (Astin, 1993; Pascarella & Terenzini, 1991). This raises an important question about the role of peers in the success of adult students. Kasworm and Pike (1994) found that adult students succeed in college at about the same rate as traditional age students, but they engage in fewer interactions with peers than their traditional counterparts. Moreover, those interactions are not important predictors of their success. This finding is consistent with other studies showing that social integration is relatively unimportant for adult student success (Chartrand, 1990; Kasworm & Pike, 1994; Metzner & Bean, 1987). However, these findings are not conclusive, as other studies have found peer interaction to be correlated with adult student success (Arnold, Kuh, Vesper, & Schuh, 1993; Cleveland-Innes, 1997; VanStone, Nelson, & Niemann, 1994).

One reason for the mixed findings regarding the contribution of social integration may be the inclusion of three distinct variables in the social integration construct. Most studies define social integration as one or more of the following variables: involvement in social activities on campus, in social relationships with other college students, and involvement in educationally related peer relationships (Bean & Metzner, 1985; Kasworm & Pike, 1994; Pascarella & Terenzini, 1991). For adult students, these three components may be unrelated to each other. Adults do not typically engage in many campus activities, and their social needs are likely met through existing relationships off campus (Chartrand, 1990). However, relationships with an educational component may not be readily available in those settings. Hence, when educationally related relationships are put in the same category with purely social relationships, their effectiveness in terms of predicting student success may be masked, especially for adult students (Bean & Metzner, 1985; Chartrand, 1992; Cleveland-Innes, 1997).

In studies not focused specifically on adults, educationally related peer relationships appear to be a wise investment of student time. Peer learning increases the effort students invest in learning, both in the group setting and individually. Students in peer learning groups report spending more time on coursework than their peers not in such groups (Tinto, 1998a, 1998b). One source of educationally related peer relationships is in formal peer learning programs, such as study groups and tutoring settings. Students show marked increases in learning when they are involved in such programs (Bonsangue & Drew, 1995; Tinto, 1998a, 1998b; Treisman, 1992). Tinto (1998a) investigated programs that enrolled students together in blocks of courses and required students to work together in groups. He found that students earned higher grades and persisted in college longer when they were involved in such programs. These findings are especially helpful in understanding nontraditional students as they were a large proportion of the students in his study. Tinto focused on the classroom and peer learning groups that grew out of the classroom. His conclusions about restructuring courses around peer learning are well founded, but his research does not address peer relationships that originate in the out-of-class arena.

In summary, there are studies that show the importance of peer learning that include nontraditional students, but do not address the out-of-class arena (Tinto, 1998a, 1998b: Treisman, 1992). Similarly, there are studies that address the out-of-class arena and peer learning, but do not include many nontraditional students in their study (Astin, 1993; Kuh, 1993, 1995; Kuh, Schuh, Whitt & Associates, 1991; Pascarella & Terenzini, 1991). Those studies that do include nontraditional students, treat them as one group, rather than identify similarities and differences among the groups (Chartrand, 1990, 1992; Bean & Metzner, 1985; Kasworm & Pike, 1994).

The study presented in this article uses multiple-linear path analysis to investigate the factors that influence success for adult students. It asks whether these factors differ for different ages, and how time limitations, in particular, affect success. Peer relationships are defined broadly and not limited to classroom-related activities. Younger students were included in the study to identify whether the differences were related to age or to other nontraditional characteristics of commuting, enrolling part-time, and working. Social and academic integration variables were disaggregated into variables of nonacademic social interaction, interaction with faculty members, and educationally meaningful peer relationships. The question of whether adults are different because of their age or because of their time-limited status is central to this study.

It is important to note that the term "adult" is problematic as it implies that 18–22-year-old students are not adults. Despite my belief that younger students are adults, I have chosen to use the term "adult" because it is the most commonly used term in studies about students older than 23 years. The focus of this study is degree-seeking adult students enrolled either full-time or part-time in degree-granting institutions. This includes students who have returned to college after taking time off and those who have been going to college consistently since high school.

The study is guided by the following two research questions:

1. How do background characteristics, time-limiting characteristics of the college experience, social and academic integration, and quality of effort contribute to student learning?
2. Is there a difference in this pattern based on the age of students (20–23, 24–29, 30 and older)?

## *Methods*

### *The Conceptual Model*

This model is based on the notion that student effort is a good predictor of student learning, such that students who invest more effort in their educational endeavors learn more (Pace, 1984). Thus, effort in reading and writing is expected to have a positive effect on learning. A second expectation is that frequency of engagement with faculty and peers and high-quality relationships with faculty, administrators, and students will increase the amount of effort students invest in the college experience and thereby enhance their learning (Arnold, Kuh, Vesper, & Schuh, 1993; Astin, 1984; Pascarella & Terenzini, 1991; Tinto, 1998a. Thus, a social and academic integration is expected to have a direct effect on learning and an indirect effect on learning through its positive effect on effort in reading and writing.

The next set of related expectations are based on Astin's (1993) findings that investment of time in ventures unrelated to the college experience, such as working off campus, hinder student learning because they limit time students have available to invest in the college experience. Hence, it is expected that time available for on-campus pursuits is limited by being older, working more than 20 hours per week off campus, enrolling part-time, and commuting. These variables and interactions between these variables are expected to have a negative direct effect on learning and also negative indirect effects on learning through negative effects on social and academic integration and effort in reading and writing. Older students have been found to be less engaged with peers, but to report equal levels of learning as younger students do (Kasworm & Pike, 1994). However, the effects of their lesser engagement have not been identified. This study seeks to identify the way time-limitations affect older students, with the expectation that peer relationships will be less essential to their learning than it is for younger students.

Background variables of class level, institution type, advanced degree plans, academic major, gender, first-generation status, and ethnicity are included in the model to identify their effects and to hold them constant. Previous studies have found background variables to affect social and academic integration and effort, but have not examined their effect on time limitations (Kuh, Vesper, Connolly, & Pace, 1997). However, other studies (Rendon & Hope, 1996) have found that first-generation students and students of color are more likely to have external time demands on their college experience. Figure 1 shows the Proposed Path model.

### *The Survey*

The fourth edition of the College Student Experiences Questionnaire (CSEQ) (Kuh & Pace, 1998) was used for this study. The CSEQ is designed to assess where students expend effort related to their college experience and what they learn as a result of their college experience. It measures quality of effort through 13 activity scales on topics of writing experiences, campus facility use, course learning, the arts, experience with faculty, personal experiences, library use, computer and information technology, clubs and organizations, student acquaintances, science and quantitative experiences, topics of conversation, and information in conversations. Gains are measured in general education, intellectual skills, science, personal development, and vocational preparation. Because of this study's focus on adult students, many of whom were already working in careers, the vocational preparation scale of the CSEQ was not used.

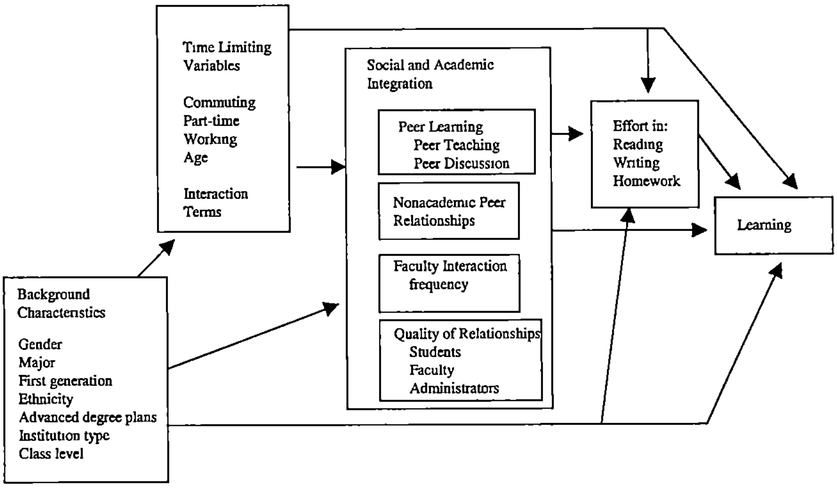

FIG. 1. Proposed Path

The CSEQ relies on students' self-report of estimates of gains. Such self-reports are considered valid if the information given is known to the students, if the questions are phrased clearly, and if students consider the question worthy of a thoughtful response (Pace, 1985). The CSEQ items satisfy these conditions. In addition, self-reports have been shown to be correlated with more objective measures of learning gains, such as scores on objective tests (Pascarella & Terenzini, 1991; Pike, 1995). The items on the CSEQ scales have been described as clear, well defined, with high-face validity (Brown, 1985; DeCoster, 1989; McCammon, 1989; Mitchell, 1983). The CSEQ has been used since 1979, with over 350,000 college students, with demonstrated reliability and validity since its inception (Kuh, Vesper, Connolly, & Pace, 1997; Pace, 1992; Pace, 1987; Pace & Swayze, 1992).

### *The Sample*

The sample consisted of 4644 undergraduate students who took the College Student Experiences Questionnaire (CSEQ) during the 1998–1999 academic year, drawn from a larger data set of approximately 20,000 students from 20 institutions. The institutions were primarily comprehensive colleges and universities (60%, n=2767) or research universities (25%, n=1163), but included doctoral universities

(7.5%, n=347), liberal arts colleges (7.2%, n=337), and AA degree-granting colleges (.6%, n=30). The sample included slightly more women (n=2594, 57%) than men (n=2050, 43%).

Because adult students were the focus of this study, students over 23 years old were oversampled, representing 49% of this sample, whereas adult students constitute about 40% of the college students's population in the United States. Time-limitations of commuting, enrolling part-time, and working were important variables in this study, and these students were not evenly distributed among the data set, so they were oversampled also. In the college-student population, older students are more likely to work more hours off campus than younger students, so a larger portion of working students (26%) were selected for comparison purposes. For the entire sample, part-time students were 20%, commuting students were 58%, and working students made up 28% of the sample. These groups were oversampled from the CSEQ dataset, but they come closer to representing the college-student population in the United Stated today (Levine & Cureton, 1998). Oversampling of time-limited students restricts the extent to which this study may apply to all students, however it provides an opportunity to focus more closely on the ways these characteristics affect student learning. In addition, it allows us to ask whether time limitations have the same effects on learning for all age groups. First-year students and students younger than 20 years old were not included in this study because they had less experience in college and the model tests the way the college experience affects learning. Table 1 shows the sample in terms of age groups and time-limitations.

### *The Variables*

The variables predicting learning in this model came from four domains: effort in reading and writing, frequency and quality of relationships with peers and faculty, time-limiting characteristics, and back-

TABLE 1

Time-limiting Characteristics by Age Group (n=4644)

| | | | Commute | | Part-time | | Working | |
|---|---|---|---|---|---|---|---|---|
| *Age* | *n* | % | *n* | % | *n* | % | *n* | % |
| 20–23 | 2361 | 51 | 919 | 39 | 361 | 15 | 467 | 26 |
| 24–29 | 1345 | 29 | 970 | 72 | 263 | 20 | 488 | 43 |
| 30 and older | 938 | 20 | 791 | 85 | 299 | 32 | 335 | 41 |

ground characteristics. The ultimate endogenous variable was learning, which was measured with a 22-item composite variable. A second endogenous variable was effort in reading and writing, which was measured with six individual items about quantity of reading and writing students completed. The third endogenous variable was quality and frequency of relationships, which was measured by peer teaching, peer discussion, nonacademic peer relationships, faculty interaction, and quality of relationships with students, faculty, and administrators. The fourth endogenous variables measured time-limitations in terms of working, commuting, enrolling part-time, and being older than 23. Exogenous variables were background variables of gender, marital status, major, first-generation status, ethnicity, advanced degree plans, institution type, and college class level. All variables except background variables and time-limiting variables used a likert scale of measurement. Time-limiting variables of commuting, enrolling part-time, working, and being older than 23 were dummy variables, coded such that 2 meant they were time-limited and 1 meant they were not. Academic major was coded similarly, with 1=yes and 0=no for majors in science, social science, and business. Humanities majors were represented by zeros on the other dummy variables for major. Ethnicity was coded as two dummy variables, with 1=yes and 0=no for Asian/Pacific Islander, and a second group which combined Native American, Mexican American, Black/African American, Puerto Rican, Other Hispanic, and Other. In order to get at least 10% in each group, the Native American, Mexican American, Black/African American, Puerto Rican, Other Hispanic, and Other group were recoded into one group for use in multiple linear regressions. White students were represented by zeros on the other two ethnicity variables. Table 2 shows a description of all variables in this analysis.

### *The Analysis*

Descriptive statistics were used to identify the proportion of students in time-limiting categories, to calculate means for gains and for variables in the social and academic integration category. Analysis of Variance and t-tests were used to identify differences among groups in terms of the variables within the social and academic construct and differences in terms of composite gains.

A multiple linear-path model identified both the direct and indirect effects of variables. Astin's involvement theory states that investment of energy in off-campus pursuits has a negative effect on gains because it limits student effort on college-related experiences. A path analysis was well suited to test this effect because it could identify the effect of time

TABLE 2

Description of Variables

| *Background Variables* | *Definition* |
|---|---|
| Class level | Sophomore=2, junior=3. senior = 4 |
| Gender | Male=1, female=2 |
| Major | Dichotomous variables in which 0=no, 1=yes for the following majors: science, business and public administration, social science. Humanities major was represented by zeros on all of the other dummy variables for major. |
| First generation | Dichotomous variable in which 1=not first generation, 2=first generation |
| Ethnicity | Dichotomous variables in which 0=no, 1= yes for Asian/Pacific Islander and group which combined Native American, Mexican-American, Black/African-American, Puerto Rican, Other Hispanic, and Other. In order to get at least 10% in each group, the Native American, Mexican-American, Black/African-American, Puerto Rican, Other Hispanic, and Other group were recoded into one group for use in multiple linear regressions, with 1=yes and 0=no. Ethnicity of White was represented by zeros on all of the other dummy variables for ethnicity. |
| Advanced degree plans | Dichotomous variable in which 1= no advanced degree plans, 2=advanced degree plans. |
| Institution Type | Two dichotomous variables in which 1=no, 2=yes for comprehensive colleges and universities and research universities. |
| *Time Limiting Variables* | *Definition* |
| Commuting | Dichotomous variable in which 1=living on campus or within walking distance, 2=living off campus |
| Part-time | Dichotomous variable I which 1=enrolled for 12 or more units, 2=enrolled for 11 or fewer units |
| Working | Three individual variables: dichotomous variable in which 1= not working or working less than 20 hours per week off campus, 2=working 20 or more hours off campus; continuous variable measuring number of hours working per week, with 1= no job, 2=1–10 hours/week, 3=11–20 hours/week, 4=21–30 hours/week, 5=31–40 hours/week, 6=>40 hours/week; job affects school, with 1=no job, 2=job does not interfere, 3=job takes some time from school, 4=job takes lots of time from school. |
| Age | Two variables: when file was split by age group, 2=20–23, 3=24–29, 4=30 and older; when age was a predictor variable for the entire sample, 2=20–23, 3=24–29, 4=30–39; 5=40–55, 6=over 55. |
| *Social and Academic Integration* | *Definition* |
| Peer Teaching | Composite of four variables: explained science, demonstrated lab equipment, explained experimental procedure, explained scientific basis for concerns. Coded on 4-point likert scale, 1=never, 4=very often. Alpha = .86. |
| Peer Discussion | Composite of 31 variables: acquainted with students who were different in terms of interests, family background, age, race, country of origin; had serious discussions with students who were different in terms of: philosophy of life, political opinions, religious beliefs, race, country of origin; used information from other areas of life in class discussions; asked others to read writing; talked about: art, music, opinions of art, current events, social issues, different lifestyles, ideas of writers, the arts, science, computers, social and ethical issues related to science, the economy, international relations; met students for discussion; referred to course knowledge in peer discussion; |

TABLE 2 (*Continued*)

| *Background Variables* | *Definition* |
|---|---|
| | read as a result of peer discussion; explored different ideas, referred to instructor's comment in discussion; changed opinion as a result of discussion; persuaded others to change their minds as a result of arguments presented in discussion. Likert scale measuring frequency, with 1=never, 4=very often. Alpha =.91. |
| Nonacademic Peer Relationships | Composite of four variables: attended a club meeting, worked on campus committee, managed a club, played intramural sport. Likert scale measuring frequency, with 1=never, 4=very often. Alpha = .76. |
| Faculty Interaction | Composite of 13 variables: talked with instructor about course, discussed academic program, discussed ideas for term paper, discussed career plans, worked harder because of instructor feedback, socialized with faculty outside of class, discussed with faculty outside of class, asked about academic performance, worked harder to meet instructor's expectations, worked with faculty on research, asked for writing advice from instructor, met with faculty to discuss club, talked with faculty about personal concerns. Likert scale measuring frequency, with 1=never, 4=very often. Alpha = .88. |
| Quality of Relationships with Students | Seven point likert scale, with 1=competitive, uninvolved, sense of alienation; 7=friendly, supportive, sense of belonging. |
| Quality of Relationships pathetic; with Faculty | Seven point likert scale, with 1=remote, discouraging, unsym- 7=approachable, helpful, understanding, encouraging. |
| Quality of Relationships with Administrators | Seven-point likert scale, with 1=rigid, impersonal, bound by regulations; 7=helpful, considerate, flexible. |
| *Effort in Reading and Writing* | *Definition* |
| Effort in Reading | Three items: how many books, course packets, nonassigned books read; coded:0=none, 1=fewer than five, 2=5–10, 3=10–20, 4=more than 20. |
| Effort in Writing | Three items: how many essays, papers, reports written; coded 0=none, 1=fewer than five, 2=5–10, 3=10–20, 4=more than 20. |
| Hours on homework | How many hours per week spent on homework. Coded: 0=5 or less, 1=6–10, 2=11–15, 3=16–20, 4=21–25, 5=26–30, 6=more than 30. |
| *Learning* | *Definition* |
| | Composite variable of 22 variables: understand art, enjoy literature, broad general education, understand importance of history, knowledge about other parts of the world, aware of different philosophies, write clearly, present ideas through speaking, use computers, analyze quantitative problems, think analytically, put ideas together, understand science, understand new development in science, aware of consequences of new applications of science, ability to get along with different kinds of people, learning alone, adapting to change, function as a team member, good health habits, developing own values and ethics, understanding self. Measured with 4-point likert scale, with 1=little, 4=very much. Alpha=.9120. |

limitations both directly and indirectly through social and academic integration and effort.

The full model, including all independent variables, was tested in the analysis; only variables with betas ($p<0.01$) were included in the model.

Because the sample was large and because many variables were tested, a lower significance level (p<0.01) was necessary. Tolerance was set at .30 to prevent multicollinearity. Next, the data were reanalyzed with just the entering variables as possible predictors. To test the strength of the model, decompositions of bivariate covariation were conducted between all predictor variables and learning. Error terms were calculated for all endogenous variables. The path was tested with the entire sample of students (n=4644) and with each specific age group: 20–23 (n=2361), 24–29 (n=1345), and 30 years or older (n=938).

## *Results*

### *Learning by Time-limited Status*

Students 20–23 years old reported the most learning (mean =2.706, s =.513), followed by students 24–29 (mean =2.680, s =.548), with students 30 and older reporting the least learning (mean=2.618, s=.569). T-tests comparing time-limited students with same-age students who were not time limited yielded significant differences for students 29 and younger. For the age groups of 20–23 (n=2361) and 24–29 (n=1345), part-time students and commuting students reported significantly lower gains (p<.05) than their same-age peers who did not commute or enroll part-time. Time-limitations had no effect on gains for students 30 years and older.

### *Social and Academic Integration*

An ANOVA found no differences in frequency of faculty interaction among the age groups, but significant differences in peer teaching, peer discussion, and nonacademic peer relationships. Younger students engaged in more peer teaching and more nonacademic peer relationships than older students. Older students engaged in more peer discussion than younger students did. The means and significant differences by age are listed in Table 3.

TABLE 3

Means for Frequency of Interactions by Age Group

Means were scored on a four point likert scale, with 4 = very often, 1 = never

| Variable | Age Groups<br>A<br>20–23 | B<br>24–29 | C<br>30 & older | F | F sig. |
|---|---|---|---|---|---|
| Faculty Interaction | 2.12 | 2.11 | 2.10 | .69 | >.50 |
| Peer Teaching+ | 2.39 | 2.38 | 2.29 | 8.16 | <.01 |
| Peer Discussion++ | 2.49 | 2.54 | 2.56 | 7.61 | <.01 |
| Nonacademic Peer Relationships* | 2.01 | 1.55 | 1.40 | 266.10 | <.01 |

**p* <0.01 A>B>C  +*p* <0.01 A & B >C  ++*p* <0.01 B &C > A

Students assessed quality of relationships with peers, faculty, and administrators with a seven-point likert scale, with 1 being low and 7 being high. Younger students reported higher quality of relationships with students than older students. Older students reported higher quality of relationships with faculty and administrators than younger students did. An ANOVA found all these differences to be significant at <.01. The means and significant differences by age group are listed in Table 4.

### *The Causal Model*

The path model was designed to identify predictors of student learning, focusing on the roles of age and time limitations on social and academic integration. Because age was an important variable in this study, the path was first tested with the entire sample to identify effects of age. Next, it was tested with age groups 20–23, 24–29, and 30 and older to identify the fit for each age group. The effects for the entire sample are listed in table 5. The regression coefficients and coefficients of multiple determination are listed in the appendix.

The strongest effects in the model came from social and academic integration variables, with the two strongest effects coming from peer discussion (.296) and peer teaching (.181). Nonacademic peer relationships did not enter the model with significance, but the remaining six social and academic integration variables all had effects of greater than .100, and all were significant (p<0.01). These effects were primarily direct effects, with some small indirect effects through their influence on effort in reading.

There were negative effects for enrolling part-time (–.029) and commuting (–.020), but working off campus had no significant effect on learning. Effort in reading had some effects, but none of the effort variables were as strong as the social and academic integration variables.

TABLE 4

Means for Quality of Relationships by Age Group

Means were scored on a four point likert scale, with 4 = very often, 1 = never

| Variable | Age Groups<br>A<br>20–23 | <br>B<br>24–29 | <br>C<br>30 & older | F | F sig. |
|---|---|---|---|---|---|
| | n=2361 | n=1345 | n=938 | | |
| Quality of relationships with students* | 5.55 | 5.21 | 5.22 | 33.32 | <.01 |
| Quality of relationships with faculty+ | 5.15 | 5.12 | 5.44 | 16.59 | <.01 |
| Quality of relationships with administrators+ | 4.55 | 4.47 | 4.77 | 9.42 | <.01 |

*$p$<0.01 between A&C and A & B +$p$<0.01 between A&C and B & C

TABLE 5
Effects for the Entire Group

| | Direct Effect | Indirect Effect | Total Effect | Original Covariation | Non-Causal |
|---|---|---|---|---|---|
| Peer Discussion | .286 | .010 | .296 | .485 | .189 |
| Peer Teaching | .174 | .007 | .181 | .408 | .227 |
| Faculty Interaction | .102 | .007 | .109 | .426 | .297 |
| Relationships w/ Students | .116 | .002 | .118 | .306 | .188 |
| Relationships w/Faculty | .121 | –.002 | .119 | .329 | .210 |
| Relationships w/Administrators | .117 | .002 | .119 | .300 | .181 |
| Number of course packets read | .041 | | .041 | .193 | .152 |
| Number of texts read | .044 | | .044 | .163 | .119 |
| Non-assigned books read | –.033 | | –.033 | .088 | .121 |
| Part-time | | –.029 | –.029 | –.048 | .019 |
| Commuting | | –.020 | –.020 | –.065 | –.045 |
| Science major | | .066 | .066 | .055 | –.011 |
| Business major | | –.026 | –.026 | –.038 | –.012 |
| Research University | | –.009 | –.009 | –.011 | –.002 |
| Comprehensive Colleges/Univ | | .001 | .001 | –.030 | –.031 |
| Age | –.071 | .017 | –.054 | –.055 | –.001 |
| Class level | | .045 | .045 | .049 | .004 |
| Women | | –.003 | –.003 | .019 | .022 |
| Asian/Pacific Islander | | –.025 | –.025 | .009 | .034 |
| Native Am/African Am/Latino | .084 | .026 | .026 | .078 | .052 |

$p$<0.01 for all variables

Background variables had effects of .066 or less, primarily through their effect on social and academic integration variables.

After the causal model was tested with the entire sample as one group, it was tested with each of the three age groups: 20–23, 24–29, and 30 and older. Effects and residuals are displayed by age group in Tables 6, 7, and 8.

### *Effects by Age Group*

Time-limiting characteristics exercised their effect primarily indirectly, rather than directly. For the 20–23 age group and the 24–29 age group, there were several indirect effects of time-limiting characteristics on gains, but there were no direct effects. For 20–23-year-olds, there were negative indirect effects for commuting (–.025) and enrolling part-time (–.016). For 24–29-year-olds, there were negative indirect effects for enrolling part-time (–.033) and working (–.010). For students 30 and older, enrolling part-time had a negative effect on their learning (–.046). These findings are consistent with Astin's involvement theory (1984),

TABLE 6

Effects for Students Age 20–23

| | Direct Effect | Indirect Effect | Total Effect | Original Covariation | Non-Causal |
|---|---|---|---|---|---|
| Peer Discussion | .350 | | .350 | .541 | .191 |
| Peer Teaching | .189 | | .189 | .438 | .249 |
| Faculty Interaction | .091 | | .091 | .448 | .357 |
| Relationships w/ Students | .125 | | .125 | .277 | .152 |
| Relationships w/ Faculty | .138 | | .138 | .349 | .213 |
| Relationships w/ Administrators | .078 | | .078 | .283 | .205 |
| Part-time | | –.016 | –.016 | –.050 | –.034 |
| Commute | | –.025 | –.025 | –.041 | –.016 |
| Business | | –.027 | –.027 | –.038 | –.011 |
| Social Science | | .010 | .010 | .049 | .039 |
| Science | | .072 | .072 | .056 | –.016 |
| First Generation | | –.021 | –.021 | –.029 | .008 |
| Women | | .023 | .023 | .015 | –.008 |
| Asian/Pacific Islander | –.055 | –.027 | –.082 | –.031 | –.051 |
| Native Am/African Am/Latino/a | .092 | .031 | .123 | .078 | –.045 |
| Research University | | –.028 | –.028 | .007 | .035 |
| Comprehensive Colleges and U's | | –.010 | –.010 | –.029 | –.019 |
| Class level | | .059 | .059 | .074 | .015 |

$p<0.01$ for all variables

TABLE 7

Effects for Students Age 24–29

| | Direct Effect | Indirect Effect | Total Effect | Original Covariation | Non-Causal |
|---|---|---|---|---|---|
| Peer Discussion | .273 | | .273 | .469 | .196 |
| Peer Teaching | .187 | | .187 | .406 | .219 |
| Faculty Interaction | .118 | | .118 | .409 | .291 |
| Relationships w/ Students | .129 | | .129 | .342 | .213 |
| Relationships w/ Faculty | .092 | | .092 | .318 | .226 |
| Relationships w/ Admin. | .118 | | .118 | .294 | .176 |
| Working | | –.010 | –.010 | –.014 | –.004 |
| Part-time | | –.033 | –.033 | –.059 | –.026 |
| Native Am/African Am/Latino/a | | .022 | .022 | .099 | .077 |
| Research U | | –.047 | –.047 | –.045 | .002 |
| Comprehensive Colleges and U's | | –.047 | –.047 | –.030 | .017 |
| Business major | | –.029 | –.029 | –.037 | –.008 |
| Science major | | .076 | .076 | .108 | .032 |
| Class level | | .016 | .016 | .077 | .062 |
| Women | | .009 | .009 | .010 | .001 |

$p<0.01$ for all variables

TABLE 8

Effects for Students Age 30 and Older

| | Direct Effect | Indirect Effect | Total Effect | Original Covariation | Non-Causal |
|---|---|---|---|---|---|
| Peer Discussion | .215 | | .215 | .407 | .192 |
| Peer Teaching | .125 | .016 | .141 | .332 | .191 |
| Faculty Interaction | .137 | .016 | .153 | .403 | .250 |
| Relationships w/ Faculty | .151 | | .151 | .333 | .182 |
| Relationships w/ Admin.. | .222 | | .222 | .363 | .141 |
| Part-time | | –.046 | –.046 | .004 | .050 |
| Course packets read | .099 | | .099 | .222 | .123 |
| Native Am/African Am/Latino/a | .131 | | .131 | .126 | .005 |
| Class level | | .031 | .031 | .041 | .010 |
| Science | | .010 | .010 | –.025 | –.035 |
| Women | | –.014 | –.014 | .050 | .064 |

$p<0.01$ for all variables

asserting that the more deeply students are involved in the life of the university, the more they will gain from their college experience. Working off campus, commuting, and enrolling part-time have been consistently found to have a negative effect on learning for traditional-age students. This study confirms that and suggests that this effect persists for students 24–29 years old. Enrolling part-time had a negative effect (–.046) on learning for students 30 and older.

Students 30 and older were not affected negatively by working many hours or communting, but they were affected positively by social and academic integration variables. Peer teaching, peer discussion, faculty interaction, and quality of relationships with faculty and administrators had positive effects on learning for every age group. For students 20–29 years old, quality of relationships with students also had strong positive effects. The total effects for social and academic integration variables are listed in Table 9.

Quality of relationships with administrators got progressively stronger with each age group. For students 30 and older, this was the strongest variable in the equation. The total effects for peer teaching and for peer discussion got lower with each progressive age group, but those effects were relatively high even for the oldest group. Frequency of interaction with faculty had increasing effects for each progressive age group. Faculty interaction was a stronger predictor of gains for older students than it was for younger students. Conversely, educationally related student interaction (peer teaching and peer discussion) was a stronger predictor of gains for younger students than it was for older students.

TABLE 9
Total Effects for Social and Academic Integration for Entire Sample and Split by Age Groups

| Variable | Entire Sample<br>n=4644 | 20–23<br>n=2361 | 24–29<br>n=1345 | 30 and older<br>n=938 |
|---|---|---|---|---|
| Peer Teaching | .181 | .189 | .187 | .141 |
| Peer Discussion | .296 | .350 | .273 | .215 |
| Faculty Interaction | .109 | .091 | .118 | .153 |
| Quality of relationships with students | .118 | .125 | .129 | — |
| Quality of relationships with faculty | .119 | .138 | .092 | .151 |
| Quality of relationships with administrators | .119 | .078 | .118 | .222 |

However, it is important to note that both faculty interaction and educationally related peer interaction were strong predictors for all students, regardless of age.

When the model was tested on the entire sample as one group, the proposed model provided a relatively good fit for learning, with an error term of .785. However, it did not predict the other endogenous variables nearly as well. When the model was tested on each age group, a similar pattern emerged, with lower error terms for learning than for the other endogenous variables. The model fit for learning was slightly stronger for the younger students than the older students. The error terms for learning were .763 for the youngest group, .804 for the 24–29-year-olds, and .809 for the students 30 and older. We would expect a stronger fit for the younger students because this model is built on literature based primarily on the traditional student experience. The noteworthy finding is that the model has a good fit for adult students whose experience in college is markedly different from that of traditional-age students.

The decomposition of bivariate covariation shows that the noncausals for social and academic integration variables were larger than those for effort, time-limiting, or background variables. However, the social and academic integration variables were also the strongest predictors of learning, with larger total effects than all other variables. The social and academic integration variables are correlated with each other, so that any single effect of one variable would be larger when it is treated alone, as in a correlation. When it was entered along with the other variables, as in a multiple linear regression, the individual strength of the prediction for each of these intercorrelated variables decreased from the original covariation. The alpha reliability among the social and academic integration variables was .70, indicating these variables are correlated with one another.

### *Discussion*

Peers have consistently been identified as central to a successful learning experience in college for traditional students (Astin, 1993; Pascarella & Terenzini, 1991), but findings regarding their contribution to adult student success have been mixed (Chartrand, 1990; Metzner & Bean, 1987). By separating educationally related peer relationships from purely social relationships, this study found that peer relationships contribute strongly to learning for students of all ages when those relationships are related to learning. This effect was strongest for traditional age students, but remained strong for older students as well.

Tinto's recent work (1998a, 1998b) demonstrates that classrooms structured around peer learning predict students learning better than traditional classrooms where students work individually and independently. The current study supports the value of peer learning, although the measure of peer learning was not focused on classroom-related peer learning. The peers could have come from the classroom, the workplace, the neighborhood, or anywhere. The distinguishing feature of these peer relationships was the focus on educationally related topics of conversation. This finding may be especially important for time-limited students who have limited access to campus peers due to off-campus responsibilities, but who may have peers off campus with whom they discuss ideas related to their education. Kasworm & Pike (1994) measured peer interaction in terms of campus peers and found that adult students interacted less frequently than younger students (Kasworm & Pike, 1994). However, the current study measured peer relationships in terms of discussing educationally related ideas, and students 24 and older reported engaging in such discussions at a greater frequency than their younger counterparts. Thus, adult students engaged in more educationally related peer discussions, and those discussions were the strongest predictors of their learning. This presents a new perspective on the role of peers for adult student learning, highlighting the important role of educationally related peer relationships.

Off-campus involvements and activities that draw students' energy away from the college experience have been found to hinder student learning (Astin, 1993; Pascarella & Terenzini, 1991), but those studies have not focused on students 30 years and older. This study found that commuting and working had negative effects on learning for students 29 and younger, but these time limitations did not affect learning for students 30 and older. In addition, time limitations had a negative affect on peer discussion for students 29 and younger, but no effect for students 30 and older. These older students appear not to be as hindered by time limitations.

Quality of relationships with administrators was a strong predictor of learning for all students in this study, but it was strongest for students 30 years and older. When these students viewed administrators as flexible, helpful, and considerate, rather than rigid, impersonal, and bound by regulations, they learned more. The strength of this variable provides empirical support for the call that higher-education environments must restructure their services, hours, and perceptions about adult students (Kasworm, 1993; Schlossberg, Lynch, & Chickering, 1989).

With the exception of enrolling part-time, students 30 and older appear to be quite different from younger students in terms of their ability to manage time limitations in such a way that they do not hinder learning as they do for younger students. However, they are quite similar to younger students in terms of the learning benefit they derive from educationally related peer relationships. Prior research has found the role of peers to be relatively unimportant for adult students, but this study concludes that when peer relationships have an educational focus, they are vitally important to learning for all students, regardless of age.

In 1996, the American College Personnel Association drafted the Student Learning Imperative, asserting that the central role of student affairs is to foster student learning (American College Personnel Association, 1994). This study suggests two clear ways in which student affairs divisions can foster student learning. One way to enhance learning, especially for adults, is through improving the quality of relationships between administrators and adult students. The area of quality service has received much attention in terms of student satisfaction, but this study suggests that it also has a strong positive effect on learning. Because much of the administrative services fall within the student affairs area, student affairs professionals have a large responsibility for enhancing student learning simply by providing quality service.

A second way student learning may be enhanced is through peer learning. This study suggests that the most profitable investment of student effort is in educationally related peer relationships, regardless of the age of the student. Accordingly, the most profitable investment of student affairs administrators may be in developing programs, settings, and services that facilitate such relationships. Tinto (1998a, 1998b) calls for a restructuring of the academic side of the house around peer learning groups; this study supports his call and echoes it to the student affairs side as well.

### *Limitations*

This study relied on a national sample of students that was disproportionately weighted with adult students, so we must be cautious when generalizing to all students. Because adults were the focus of the study, the oversampling of adults allowed a close look at the adult experience and the variables that affect their learning. Traditional-age students in this sample provided an important comparison. Their experience and the variables affecting their learning were similar to what we would expect, based on many studies of the college experience of traditional students (Kuh, 1993, 1995; Pascarella & Terenzini, 1991). However, caution must be exercised before generalizing the findings from this study to all students because the sample was weighted with older students. Nonetheless, the comparison of adults with younger students highlighted several important new understandings of the adult student experience, namely that commuting, enrolling part-time, and working do not have a negative effect on their learning, that peer relationships with an educational focus have a strong effect on their learning, and finally that their perceptions of the quality of their relationships with administrators is vital to their learning.

## *Future Research*

The important contribution of peers to adult student learning raises important questions about who those peers are and about the nature of those relationships. Given previous findings that adults report engaging in fewer peer relationships on campus than traditional-age students (Kasworm and Pike, 1993), further research should focus on where peer learning relationships occurs for adults. It could be that the workplace offers an important environment for peer learning for adult students, similar to the campus environment for traditional students. Further investigation of the kinds of activities and environments that promote peer learning could provide practical suggestions for institutional reform that would foster peer learning.

The issue of academic motivation is not addressed in this study. It is likely that educational motivation is a covariate of talking with peers about educationally related topics and also a covariate of learning. Thus, students who discuss academic content with friends because they are motivated to learn, so that motivation may be the force behind both educationally related peer relationships and also behind learning. Further research should address the way academic motivation affects engagement in peer learning and also how it affects learning in general. There is a large body of literature about academic motivation, but its effect on peer learning deserves a fuller investigation.

## *Conclusion*

The findings from this study are consistent with previous studies of traditional-age students, but they present a somewhat different picture of students 30 years and older. Like younger students, their learning was enhanced by peer learning and high-quality relationships with others on campus. However, unlike younger students, their learning was not hindered by working many hours off campus or commuting. Thus, the social arena remains important for adults when those social relationships are related to educational endeavors, but assumptions that adult students are inherently at a disadvantage because of their multiple obligations off campus is not supported by this study. Older students appear to have developed a way of managing such time limitations to nullify their effects in ways that their younger counterparts have not.

## APPENDIX

Betas and Coefficients of Multiple Determination ($R^2$) for Each Endogenous Variable for Entire Sample and by Age Group

| Dependent Variable: Learning | All $R^2=.384$ | Age 20–23 $R^2=.418$ | Age 24–29 $R^2=.354$ | Age 30 and older $R^2=.344$ |
|---|---|---|---|---|
| Course packets read | .041* | | | .099** |
| Texts read | .044* | | | |
| Faculty Interaction | .102** | .091** | .118** | .137** |
| Peer Teaching | .174** | .189** | .187** | .125** |
| Peer Discussion | .286** | .350** | .273** | .215** |
| Student Relationships | .116** | .125** | .129** | |
| Faculty Relationships | .121** | .138** | .092** | .151** |
| Administrative Relationships | .117** | .078** | .118** | .222** |
| Native Amer/African Amer/Latino/a | | | .092 | .131** |
| Asian/Pacific Islander | | .055 | | |
| Age | –.071** | | | |

**$p<0.001$   *$p<0.01$

| Dependent Variable: Number of Texts Read | All $R^2=.079$ | Age 20–23 | Age 24–29 | Age 30 and older |
|---|---|---|---|---|
| Peer Teaching | .081** | | | |
| Peer Discussion | .134** | | | |
| Part-time | –.130** | | | |
| Science major | –.051* | | | |
| Social science major | .081** | | | |
| Age | .068** | | | |
| Women | .051** | | | |

**$p<0.001$   *$p<0.01$

APPENDIX (*Continued*)

Dependent Variable: Course Packets Read

| | All | Age 20–23 | Age 24–29 | Age 30 and older |
|---|---|---|---|---|
| | R$^2$=.069 | | | R$^2$=.090 |
| Faculty Interaction | .170** | | | .164** |
| Peer Teaching | .055* | | | .159** |
| Peer Discussion | .093** | | | |
| Part-time | –.038* | | | –.090** |
| Social Science major | .047* | | | |
| Student relationships | .011* | | | |
| Faculty Relationships | –.050 | | | |

$^{**}p<0.001$ $^{*}p<0.01$

Dependent Variable: Faculty Interaction

| | All | Age 20–23 | Age 24–29 | Age 30 and older |
|---|---|---|---|---|
| | R$^2$=.034 | R$^2$=.032 | R$^2$=..044 | R$^2$=.032 |
| Working | | | –.088* | |
| Commuting | –.085** | –.088 | | |
| Part-time | –.063** | | –.082* | –.142* |
| Asian/Pacific Islander | | | | |
| Asian/Pacific Islander | –.057* | | | |
| Research University | –.141** | –.172** | –.121** | |
| Comp. Colleges and U's | –.122** | –.114** | –.194** | |
| Class level | .103** | .132** | | .110** |
| Business major | –.055** | | –.074* | |
| Social Science major | | | | |

$^{**}p<0.001$ $^{*}p<0.01$

Dependent Variable: Peer Teaching

| | All | Age 20–23 | Age 24–29 | Age 30 and older |
|---|---|---|---|---|
| | R$^2$=.176 | R$^2$=.163 | R$^2$=.190 | R$^2$=.104 |
| Part-time | –.087** | –.085** | | -.144** |
| Age | –.057** | | | |
| Science major | .395** | .385** | .406** | .233** |
| Social Science major | | .054* | | |
| Women | –.064** | –.079** | | –.110* |
| Class level | .085** | .084** | .086* | .127** |
| Comp. Colleges and U's | | | –.129** | |
| Research U's | | | –.131** | |

$^{**}p<0.001$ $^{*}p<0.01$

Dependent Variable: Peer Discussion

| | All | Age 20–23 | Age 24–29 | Age 30 and older |
|---|---|---|---|---|
| | R$^2$=.014 | R$^2$=.019 | R$^2$=.016 | R$^2$=.010 |
| Part-time | | | –.084* | |
| First generation | –.049* | –.060* | | |
| Science | | | | –.107* |
| Business major | | –.076 | –.075 | |
| Native Amer/African Amer/Latino/a | | .079** | .089** | .081* |

APPENDIX (*Continued*)

| | | | | |
|---|---|---|---|---|
| Asian/Pacific Islander | –.070** | –.076 | | |
| Class level | .070** | .088 | | |

**$p<0.001$ *$p<0.01$

Dependent Variable: Quality of Relationships with Students

| | All<br>$R^2$=.026 | Age 20–23<br>$R^2$=.019 | Age 24–29<br>$R^2$=.004 | Age 30 and older |
|---|---|---|---|---|
| Commute | –.106** | –.139** | | |
| Women | .048** | | .072* | |
| Age | –.081* | | | |

**$p<0.001$ *$p<0.01$

Dependent Variable: Quality of Relationships with Students

| | All<br>$R^2$=.005 | Age 20–23<br>$R^2$=.023 | Age 24–29<br>$R^2$= 0 | Age 30 and older<br>$R^2$= 0 |
|---|---|---|---|---|
| Research University | –.063** | –.084** | | |
| Women | | .061* | | |

**$p<0.001$ *$p<0.01$

Dependent Variable: Quality of Relationships with Administrators

| | All<br>$R^2$=.005 | Age 20–23<br>$R^2$= 0 | Age 24–29<br>$R^2$=.006 | Age 30 and older<br>$R^2$= 0 |
|---|---|---|---|---|
| Research University | –.070** | | –.079* | |

**$p<0.001$ *$p<0.01$

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Shaohua (Carolyn) Mu
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# Developing Synergistic Knowledge in Student Groups

As organizations increasingly require employees to work in cross-functional teams and expect college graduates to be good team players and effective communicators (Colbeck, Campbell, & Bjorklund, 2000), student groups with members representing different majors are often used in higher education to provide cross-functional team experience to students and to enhance their learning (Baldwin, Bedell, & Johnson, 1997). Discussion of diverse viewpoints with other group members enables students to evaluate critically and integrate various perspectives and develop knowledge and skills at higher levels of Bloom's (1956) taxonomy: analysis, synthesis, and evaluation (Lang & Dittrich, 1982). As Colbeck and colleagues (Colbeck, Campbell, & Bjorklund, 2000) suggest, tasks involving examination and integration of multiple perspectives are likely to help students develop more holistic knowledge.

Despite the importance of higher-order knowledge, we know little about factors that may help or hinder the development of synergistic knowledge. Accordingly, this research examines two questions: (a) what factors influence the development of synergistic knowledge in multima-

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jor student groups? And (b) to what extent does synergistic knowledge enhance students' perceptions of their group's performance? To examine these questions, we develop a conceptual model based on the literature from social cognition, group processes, and organizational learning and empirically test the model using the context of students working on complex business-case projects.

We define synergistic knowledge development (SKD) as a process by which a group constructively integrates diverse perspectives of individual group members. We examine the extent to which task conflict (a cognitive element), psychological safety (a psychosocial element), and social interaction (a procedural element) influence SKD. Task conflict is defined as awareness of differences in viewpoints and opinions pertaining to group task (Jehn, 1995; Jehn & Mannix, 2001). Team psychological safety is defined as beliefs held by group members that the group environment is safe for bringing diverse viewpoints (Edmondson, 1999). And, social interaction is defined as the process of communication among group members (Barker & Camarata, 1998) experienced by students. Given the context of student groups, we suggest that high-task conflict might hinder synergistic knowledge development because disagreements may increase tension and reduce students' focus on the task. Negative influence of task conflict could be mitigated if group members feel psychologically safe in bringing up their diverse perspectives for discussion (Edmondson, 1999). Further, extensive interaction among group members facilitates SKD by allowing the members to better understand each other's perspectives. We also suggest that the greater the development of synergistic knowledge, the greater the likelihood that students will be satisfied with the outcome of the group project.

We examine these arguments using a sample of undergraduate students enrolled in a capstone course required of all majors in the college of business at a major state university. Each multimajor student group analyzed one complex company case and presented its analysis to the class. The group also critiqued the analysis of a case performed by another group. The results support our hypotheses, and have important implications for teaching courses involving student groups.

## *Conceptual Framework*

Figure 1 presents the conceptual framework developed and examined in this paper. As the figure shows, the development of synergistic knowledge is influenced by task conflict, psychological safety, and social interaction. Further, the greater the synergistic knowledge development, the greater the students' perceptions of the quality of their group work.

We develop below arguments related to each element of the conceptual model. We use literature from social cognition, group processes, and organizational learning (Baldwin, Bedell, & Johnson, 1997; Edmondson, 1999; Gnyawali & Grant, 1997; Kasl, Marsick, & Dechant, 1997; Nonaka, 1994; Walsh, 1995) for the theoretical basis needed to develop our conceptual framework of synergistic knowledge development. Since synergistic knowledge development is a key construct of this study, we begin our discussion with it.

### *Synergistic Knowledge Development*

Synergistic knowledge development refers to the process by which a group constructively integrates diverse perspectives of individual group members. Walsh (1995) suggests that collective knowledge structure has three key components: representation, development, and use. Learning process in one-semester groups mainly involves individuals' representation of knowledge, development of group knowledge by combining individual knowledge, and use of the knowledge in completing group projects. When starting a group project, each member first individually interprets the tasks and the overall situation with his/her own knowledge structure. Then the members discuss and synthesize their individual knowledge into a collective and integrated body of knowledge. Theories of organizational learning and social cognition also suggests that collective knowledge development occurs when the individual-level representation of the information environment is brought together to develop a collective representation through discussion, sharing, and integration of different individual perspectives (Gnyawali & Grant, 1997; Nonaka,

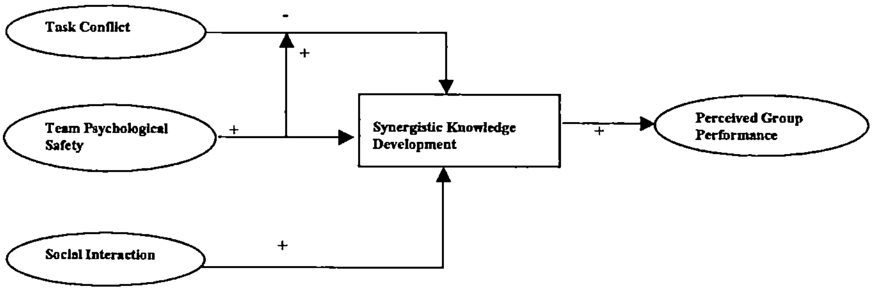
Task Conflict
-
+
Team Psychological Safety
+
Synergistic Knowledge Development
+
Perceived Group Performance
Social Interaction
+

FIG. 1. A Conceptual Model of Synergistic Knowledge Development

1994; Senge, 1990; Walsh, 1995). Thus, synergistic knowledge develops as group members utilize unique knowledge and skills of individual members, synthesize diverse viewpoints, and create an integrative understanding of the situation at hand.

In the synergistic mode of knowledge development, groups achieve a deep integration of the creative potential of all the group members (Kasl, Marsick, & Dechant, 1997). Similar to cross-functional problem-solving teams in the real world, group projects in the capstone business policy and strategy course involve students from multiple majors (i.e., having divergent perspectives), the purpose of which is to develop students' ability to understand complex and unstructured issues and solve the problems (Alexander, O'Neill, Snyder, & Townsend, 1986). The group projects assigned in business policy and strategy courses involve complex cases. Students from different majors often have diverse perspectives about the same case situation. The critical task in such groups is to develop an integrated, holistic understanding about the case situation by combining the unique perspectives of the individual members (Lang & Dittrich, 1982). Students who develop synergistic knowledge by integrating diverse viewpoints in a constructive manner are more likely to better understand the complex case situation and deal with them than those who do not.

While SKD is critical, we know very little about factors that may influence it. An understanding of factors influencing SKD will certainly provide instructors a set of tools and techniques to foster the environment necessary for SKD to occur. We discuss below three factors that could influence SKD in multimajor student groups.

### *Task conflict*

Task conflict is defined as awareness of differences in viewpoints and opinions pertaining to group task (Jehn, 1995; Jehn & Mannix, 2001). It is depersonalized cognitive conflict, involving disagreement over the meanings and implications of key facts, or over the proper courses of action toward reaching a common goal (Cosier & Rose, 1977). Since divergence of perspectives implies task conflict, heterogeneity inherent in multimajor student groups could be a key source of task conflict (Watson & Marshall, 1995). Students working in multimajor settings are bound to have diverse viewpoints regarding the tasks because educational background importantly influences perceptions (Dearborn & Simon, 1958). Cognitive diversity is important to reduce premature consensus and groupthink (Janis, 1982) on complex tasks. Students may benefit from working in groups that are diverse in learning styles and abilities (Hunkeler & Sharp, 1997). Yet, high cognitive differences in the ways the tasks are viewed and prioritized and in the ways the problems are solved may lead to confrontation and low integration of individual knowledge. Such differences could pull the group away from its purpose (Jehn & Mannix, 2001). So, the question is, in what ways does task conflict impact SKD in student groups?

Given the context of student case projects in one semester, we expect a negative influence of task conflict on synergistic knowledge development for several reasons. First, despite its allure, cognitive differentiation may be hard to understand and coordinate (Colbeck et al. 2000), particularly when students have difficulty dealing with the notion that several views of reality can have equal validity (Gallos, 1989). Since educational background influences perceptions (Dearborn & Simon, 1958; Hambrick & Mason, 1984), students are likely to have differing views on a case situation depending on their major. For example, students specializing in production and operations management may focus on efficiency enhancement whereas those in marketing may focus on improving customer responsiveness. In business organizations, employees in different functional areas typically have different learning styles (Osland, Kolb, & Rubin, 2001). For instance, marketing employees tend to solve problems in an intuitive trial-and-error manner. In situations in which theories do not fit the facts, they tend to discard theories. On the other hand, employees in research and planning departments are strong in inductive reasoning and in the ability to create theoretical models. In situations in which theories do not fit the facts, they are cautious of using the facts (Osland, Kolb, & Rubin, 2001). Many of such differences are likely to be rooted in students' education. Differences in interpretations of facts and in prioritization of issues are likely to lead to frustration. When group members cannot accept that several views could be valid, tension intensifies (Gallos, 1989), which reduces the likelihood of developing synergistic knowledge.

Second, time matters. When it is essential to respond quickly, cognitive differences present difficulties (Neumann, 1991). Differences in viewpoints require more time to understand each other, synchronize diverse views, and derive a solution. The short time of one semester might make it difficult for students to appreciate and integrate multiple perspectives. Due to project deadlines, students are likely to focus on timely completion of the assignment. The closer the ideas of group members are on the project, the faster the completion of the assignment. If group members have quite different ideas about the group project, they may prefer to make a quick compromise due to the time pressure rather than discuss their differences and constructively integrate them.

Therefore, the hasty choice students have to make might reduce synergistic knowledge development.

Finally, although group work has become popular in business education, instructors may not emphasize the importance of integrating diverse viewpoints or provide enough guidance for group work (Bolton, 1999). As a result, many students work on group projects through trial and error. When students do not appreciate diverse views or lack guidance on how to deal with them, they are less likely to have patience for diverse views or have the knowledge and skills needed to understand and integrate the differences. All these suggest that high-task conflict in student groups may lead to confusion and confrontation rather than integration of diverse viewpoints. Based on the above arguments, we hypothesize that,

*Hypothesis 1: The greater the task conflict among group members, the lower the development of synergistic knowledge.*

The above discussion suggests that while task conflict is inevitable in multimajor student groups and a necessary condition to reduce groupthink, high-task conflict is likely to negatively impact SKD. So, the question arises: how can the diversity of views be managed effectively to enhance synergistic knowledge? We suggest that team norms that explicitly value diverse viewpoints and create an environment conducive for deliberations and dialogue would help the team members to openly bring diverse perspectives and develop synergistic knowledge.

### *Team Psychological Safety*

Team psychological safety is defined as beliefs held by group members that the group environment is safe for bringing diverse viewpoints (Edmondson, 1999). In groups with high psychological safety, group members are confident that the group would not embarrass, reject, or punish someone for speaking out or for bringing a different perspective to the task (Edmondson, 1999). High team psychological safety stems from mutual respect and trust among group members and provides psychosocial support (Ibarra, 1995). Mutual respect and trust reduces the likelihood of individual members viewing others' critique of their ideas as a personal attack. Moreover, members within a group with high psychological safety are clear about the negative consequences of their silence on group performance and will therefore be willing to voice even conflicting views. Members of groups with a high level of social support have been found to display higher levels of self-efficacy and develop better coping mechanisms than members of groups without such support (Campion, Medsker, & Higgs, 1993). Given these characteristics of team psychological safety, Edmondson (1999) suggests that team psychological safety encourages learning behavior.

The willingness of group members to listen and to appreciate others' views enables the group members to voice their perspectives openly, to integrate multiple views, and to develop synergistic knowledge. As Kasl and colleagues (1997) suggest, good group work requires openness of the members to hear and consider others' ideas. Some students may be more vocal than others and dominate group discussion, leaving little room for others to express their views. This problem may be reduced if group members encourage more silent members to speak up and all members are open to hearing and considering others' perspectives. Also, if members feel that their diverse viewpoints are encouraged, they will be more open and will engage in constructive critique of each other. Thus, members' willingness to take risks by expressing their own views and their openness to others'—often opposing—views provides a sound basis for the development of synergistic knowledge. Therefore, we suggest that team psychological safety would positively influence synergistic knowledge development.

*Hypothesis 2: The greater the team psychological safety among group members, the higher the development of synergistic knowledge.*

### *Interaction between Task conflict and Psychological Safety*

Although task conflict is hypothesized above to influence synergistic knowledge development in a negative way, task conflict is bound to happen in multimajor student groups because of members' diverse educational background and experience. Persistence of high-task conflict may make the members avoid each other, which could polarize the members (Bolton, 1999) and reduce the likelihood of integrating diverse viewpoints. We suggest that team psychological safety may minimize the negative influence of task conflict on SKD by increasing each member's level of comfort to open up and to share his or her own unique ideas.

If psychological safety is low but students have conflicting opinions of the case situation, they may feel personally attacked by those who have opposing views. They will also not critique others' views because of the fear of being perceived as a criticizer. High conflict in such a situation may lead to strong negative exchanges. As Eisenhardt, Kahwajy, and Bourgeois (1997) argue, the challenge for groups to benefit from conflict is to keep task conflicts from degenerating into interpersonal conflicts. Baron (1984) suggests, "often, what starts as a rational exchange of opposing views deteriorates into an emotion-laden interchange . . . in which strong negative feelings are aroused" (p. 272). It sometimes happens that students turn from being groupmates to being adversaries since the views of these students are different, and more importantly, they don't know how to communicate and accommodate these diverse views in a constructive way.

If psychological safety is high in high-task conflict situations, students may not take others' critique of their unique ideas as personal attacks. This reduces the chances of being engaged in interpersonal negative exchanges. Thus, when psychological safety is high, the members are more likely to appreciate diverse view and are willing to surface and to discuss diverse views thence develop a more holistic understanding. Exposing individuals to alternative or even opposing opinions in a highly psychologically safe environment may encourage individuals to gather new data, to come up with new ideas, and to develop a more complete understanding of the issues in question (Tjosvold, 1986). Thus, we propose that groups with high-task conflict need to have high psychological safety in order for the diverse opinions to surface freely and encourage constructive criticism.

*Hypothesis 3: Team psychological safety moderates the relationship between task conflict and synergistic knowledge development as predicted in hypothesis 1. Specifically, when task conflict is high, high psychological safety can lead to higher synergistic knowledge than can low psychological safety.*

### *Social Interaction*

Social interaction is defined as the process of communication among group members (Barker and Camarata, 1998). It provides a procedural antecedent for SKD. We suggest that high social interaction among group members creates the extent of discussion and dialogue necessary for SKD for two reasons. First, as group work takes place in social settings among peers and each person in a group influences and is influenced by others (Shaw, 1976), communication and collaboration are a necessary element for such influence to occur. Social interaction is likely to drive the creation of collective meaning with individuals' ideas converging, diverging, or remaining unchanged as a consequence of their interaction and collaboration with others (Thompson & Fine, 1999). As students collaborate and discuss the case material in an on-going manner, they are likely to develop an integrated and sophisticated understanding of the company situation and identify unique solutions to case problems.

Second, through feedback sessions, team members review each other's roles and performance, examine aspects of member actions that were helpful and unhelpful, and decide what actions to continue or change (Johnson, Johnson, Stanne, & Garibaldi, 1990). Such feedback becomes even more critical when members have different cognitions that need to be understood and integrated to form a unique body of knowledge. Open discussions in the feedback sessions might create a process of social discovery, sharpening preferences of individuals within a group and clarifying their own opinions and those of their colleagues (Eisenhardt, Kahwajy, & Bourgeois, 1997). Such interactions also help students to better evaluate each other's contributions to various aspects of group projects (Lang & Dittrich, 1982). Since feedback process aims to improve the contribution of individuals to team outcomes, synergistic knowledge is developed.

Thus, high social interaction among students enables them to understand each other better and to engage in the exchange of "tacit" knowledge necessary for solving complex problems (Nonaka, 1994). Similarly, such interactions help them to better evaluate each other's contributions to various aspects of group projects and provide specific feedback, which in turn, will help the students to further sharpen their knowledge. Prior research also suggests that "synergistic effects have their roots in group-interaction process" (Hackman, 1987, 321), extensive communication among the members is critical to enhance learning (Baldwin et al., 1997), and social interaction influences knowledge development in organizations (Barker & Camarata, 1998). Based on the above reasoning, we hypothesize that social interaction contributes positively to synergistic knowledge development.

*Hypothesis 4: The greater the social interaction among group members, the higher the development of synergistic knowledge.*

### *Synergistic Knowledge Development and Student Performance*

While we have implied thus far that SKD is valuable, it is important to empirically demonstrate its usefulness. We therefore examine whether SKD influences some outcome variables. We focus on students' perceptions of the quality of their group work as an outcome variable. Students' satisfaction of their learning and group outcome is important in order to motivate students to put more efforts into teamwork and learn from it. If students are satisfied with their group work, they will see that the time spent on the project paid off and the struggle and disagreements resulted into something meaningful.

We argue that the development of synergistic knowledge will positively influence students' perception of the quality of their group's outcomes. Research suggests that the more developed the shared understanding, the more likely that the group members will feel comfortable with their accomplishments and be likely to "buy in" to their decisions (Klimoski & Mohammad, 1994). Well-developed and complex knowledge structures may help groups to analyze the problem from multiple perspectives, to identify several alternatives, to weigh each of them, and to select the best ones (Gnyawali & Grant, 1997; Lyles & Schwenk, 1992). Grant (1996) suggests that the ability to integrate individual knowledge might enhance collective outcomes. The more ideas are brought together by various members, and the more these ideas are integrated, the better the students will feel about their accomplishments. Research in college settings also suggests that discussion and sharing of individual insights and creation of integrated perspectives help enhance communication and leadership skills (Colbeck et al., 2000), which in turn could make students solidify their knowledge and feel more confident about the quality of their completed team project. Therefore, the greater the development of synergistic knowledge, the more likely that the students would believe that they have performed better in their group task. Similarly, the ability of a student group to integrate individual knowledge of group members will determine the capacity of the group to create further knowledge, making the group feel better about their accomplishments. Therefore,

*Hypothesis 5: The greater the development of synergistic knowledge, the better the students' perception of their group's performance.*

## *Methodology*

### *Sample, Data, and Measures*

The sample consisted of 132 senior-level undergraduate business students enrolled in four sections of the Business Policy and Strategy course in a major state university in the Eastern United States. The capstone course is a required course for majors within the college of business, i.e., accounting and information systems, management science, finance, general management, and marketing. While there is a great deal of diversity across these majors (e.g., focusing on hard-core information technology versus accounting facts and principles versus softer issues of general management), the diversity could be higher if the groups consisted of students from nonbusiness majors as well. However, since it was a capstone business course and involved analysis of complex business cases, we had to limit our sample to various majors within the college of business.

Each group, consisting of four to six students from different majors, completed two major group tasks: in-depth analysis and presentation of one complex business case and critique of the analysis performed by another group. Each case was approximately 20 pages in length, contained information about the company, including its background, industry conditions, strategies, competitive moves, leadership, and challenges. Among other things, the students had to decide what tools to use to analyze the case, to thoroughly analyze the case using appropriate tools, to draw key conclusions from the analysis, and to make recommendations to the company. Students were required individually to read and analyze the case first; thereafter they met in groups over the period of several weeks to discuss individual understandings of the analysis and critique assignments, to develop a collective understanding of the case situation, to prepare a written summary and justification of their analysis, and to present their analysis to the class. These two assignments involved about 25% of the semester grade. Three instructors taught the course. The instructors' approach to teaching were very similar because they had similar teaching experience, had collaborated extensively in teaching, used the same textbook, and provided similar guidelines to students regarding the group projects. During the semester in which this research took place, the instructors met frequently to discuss their teaching.

Students were requested to complete an optional one-page survey regarding their group processes and outcomes immediately after they finished their group projects. They were unaware of the study's questions or hypotheses, they had the option of not completing the survey, and their grades were not in any way influenced by the survey. Out of 163 students requested, 132 responded, for a response rate of 81%. Comparison of respondents and nonrespondents in terms of gender, major, and instructor revealed no significant differences between the two groups, and therefore, we concluded that no response bias existed.

The survey items were adapted from previous research, except for SKD created for this study. Each item was anchored in a seven-point Likert scale (strongly disagree = 1, strongly agree = 7), with several reverse-coded items. Table 1 presents the survey questions used for the three independent variables and SKD, and the results of factor analysis. As the Table shows, the exploratory factor analysis (with varimax rotation) of all the questions resulted in four factors, as expected.[1]

Table 2 reports the descriptive statistics and reliability scores for all the variables. Although most survey items were adapted from published sources, the reliability scores of team psychological safety and social interaction are relatively low perhaps because the instruments as applied in the student context did not capture the full complexity of these variables.

TABLE 1

Results of Exploratory Factor Analysis (Principal Component Analysis)

| Survey Items | Synergistic Knowledge Development | Task Conflict | Team Psychological Safety | Social Interaction |
|---|---|---|---|---|
| 1. My group work integrated all the different opinions of the group members. | 0.81 | –0.15 | 0.01 | 0.01 |
| 2. My group always resolved different opinions of members in a constructive manner. | 0.75 | –0.14 | 0.32 | 0.07 |
| 3. The unique skills and talents of all the members of my group were fully valued and utilized. | 0.73 | –0.18 | 0.11 | 0.17 |
| 4. Members of my group sometimes disagreed about how to analyze the assigned case. | –0.16 | 0.82 | –0.17 | 0.10 |
| 5. There were conflicting opinions in my group about key issues on the case. | –0.08 | 0.72 | –0.33 | –0.16 |
| 6. The members of my group had disagreements on how to approach the task from time to time. | –0.23 | 0.85 | 0.02 | 0.01 |
| 7. Members of my group felt comfortable to bring up problems and tough issues | 0.35 | 0.15 | 0.56 | 0.32 |
| 8. Members of my group sometimes rejected others for being different (reverse scored). | 0.00 | –0.20 | 0.78 | –0.05 |
| 9. Members of my group had a hard time listening to an opposing point or perspective (reverse scored). | 0.28 | –0.30 | 0.65 | –0.02 |
| 10. My group had a feedback session to evaluate our group processes and discuss how to improve our group work. | 0.05 | –0.26 | –0.15 | 0.82 |
| 11. To get the group task done, we had to collaborate extensively with other members in the group. | 0.13 | 0.24 | 0.21 | 0.77 |
| Eigenvalues | 1.71 | 3.51 | 1.17 | 1.04 |
| % of variance (Variance explained by each factor) | 15.5 | 31.9 | 10.6 | 9.5 |

TABLE 2

Descriptive Statistics, Reliability, and Zero-Order Correlations

| Variables | Mean | S.D. | Construct reliability | No. of Items | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| 1. Perceived performance | 95.26 | 4.62 | NA | 1 | | | | |
| 2. Synergistic knowledge development | 5.72 | 1.02 | 0.7 | 3 | 0.31* | | | |
| 3. Task conflict | 3.35 | 1.41 | 0.8 | 3 | 0.19* | –0.37** | | |
| 4. Team psychological safety | 6.15 | 0.91 | 0.6 | 3 | 0.32** | 0.45** | –0.34** | |
| 5. Social interaction | 4.54 | 1.35 | 0.5 | 2 | 0.21* | 0.21* | –0.09 | –0.13 |

N = 132 *$p < 0.05$, two-tailed test **$p < 0.01$, two-tailed test

### *Data Analysis*

We performed hierarchical regression analysis to test the proposed model. The main effects hypotheses (H1, H2, H4) would be supported if task conflict, team psychological safety, and social interaction were significantly related to synergistic knowledge development. Before computing the moderator term (by multiplying the values of team psychological safety and task conflict), we centered task conflict and psychological safety variables as suggested by Jaccard, Turrisi, and Wan (1990) in order to reduce the potential problem of multicollinearity. The moderation effect (hypothesis 3) would be supported if the model with the interaction term represented a statistically significant improvement over the model with only the main effects. We also examined if there were any differences in terms of gender, major, and instructor. We did not find any significant impact of these variables on synergistic knowledge development. Therefore, we decided not to include them in our model.

### *Results*

Table 3 displays the results of hierarchical regression with synergistic knowledge development as the dependent variable and task conflict, team psychological safety, and social interaction as independent variables. The entire regression equation explained 31.2% of the variance in synergistic knowledge development ($p < .001$). In the Table, model 1 is the test of the main effects and model 2 is the test of the moderation effect. In model 1, the effect of task conflict on synergistic knowledge development is significant and negative (as predicted in hypothesis 1), while the effect of team psychological safety is significant and positive (as predicted in hypothesis 2). Therefore, the results support hypotheses 1 and 2. The test of hypothesis 3 (model 2) shows that the interaction term explains an additional 3.6% of the variance and is significant at .05 level. Therefore, hypothesis 3 is supported.

In order to better understand the moderation effects, we dichotomized the values of task conflict and psychological safety into high (above mean) and low (below mean) and performed ANOVA. The results presented in Figure 2 show that when task conflict is high, high psychological safety leads to higher SKD (mean SKD = 6.24) than low psychological safety (mean SKD = 5.0). Thus, under conditions of high conflict, as the plot indicates, high psychological safety increases SKD.

The results show that the effect of social interaction on SKD (hypothesis 4) is significant at .10 level, thus providing a weak support for

TABLE 3
Results of Hierarchical Regression: Synergistic Knowledge Development as Dependent Variable

| Variables | Standardized Regression Coefficients<br>Model 1 | <br>Model 2 |
|---|---|---|
| Task conflict | –0.232<br>(0.008) | –0.215<br>(0.013) |
| Team psychological safety | 0.364<br>(0.000) | 0.278<br>(0.007) |
| Social interaction | 0.168<br>(0.075) | 0.190<br>(0.037) |
| Task conflict x Team psychological safety | | 0.208<br>(0.019) |
| R square | 0.277<br>(0.000) | 0.312<br>(0.000) |
| R square change | | 0.036<br>(0.019) |

The numbers in parentheses are *p* values. N = 132

hypothesis 4. Social interaction seems to play a greater role when the interaction between task conflict and psychological safety is in the model (model 2 versus model 1 in Table 3). A comparison of the standardized coefficients of the main and interaction effects shows that team psychological safety has the most influential effect on synergistic knowledge development, followed by task conflict, then the moderator variable. Social interaction exerts the least influence on synergistic knowledge development.

Hypothesis 5 is also supported because the results show that SKD significantly contributes to students' perceptions of their group performance. The standardized regression coefficient is .306 (significant at .001 level), and SKD explains 9.4% of the variance in perceived group performance.

## *Implications and Conclusion*

Prior research suggests that students are generally not satisfied with, or do not appreciate, group work (Bolton, 1999). This could be because students experience high conflict and lack guidance from instructors regarding how to work effectively in groups. Concrete and systematic guidance from instructors regarding how to manage the conflict and effectively work in groups could help students to navigate successfully their complex team-based assignments. However, without a strong research base, instructors are often unclear about factors that may help

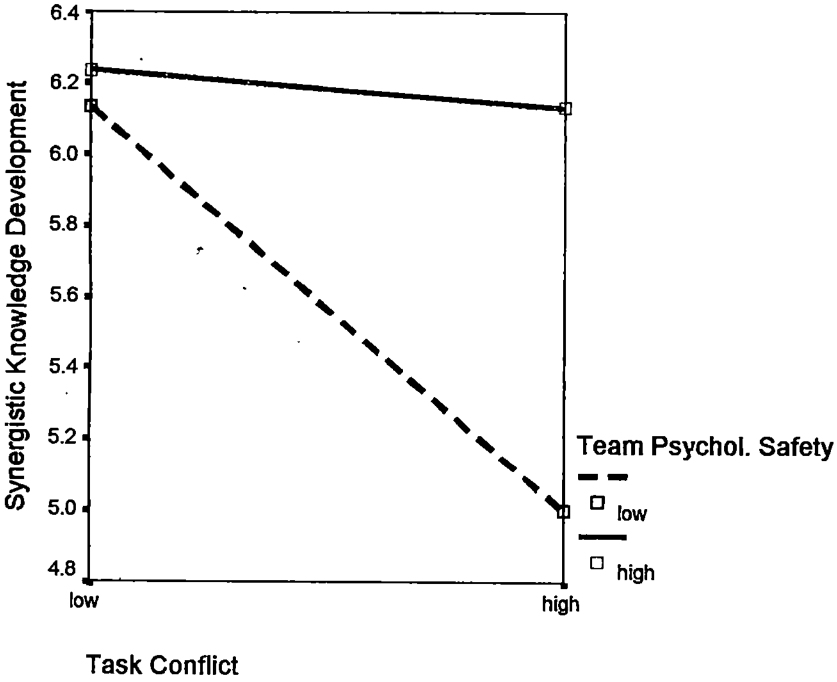

FIG 2. Interaction Effects of Team Psychological Safety and Task Conflict on Synergistic Knowledge Development

student groups to learn better or enhance group performance. Because students who perceive that they have learned and are satisfied with their education are less likely to drop out (Braxton, Milem, & Sullivan, 2000; Tinto, 1997), it is important to examine factors that may help students to develop higher-order knowledge and improve their perceptions. Further, developing student skills in working effectively in teams with diverse members and creating holistic knowledge is critical for students' success in their careers. To address these important issues, this paper conceptualizes and empirically examines factors that influence the development of synergistic knowledge in student groups. We identify cognitive, psychosocial, and procedural factors based on the existing literature and examine their impacts on SKD. Our motivation for the study is to examine synergistic knowledge development in educational settings that are similar to cross-functional team settings used in organizations to solve complex problems. However, it is almost impossible to find students in diverse majors (such as business, engineering, sociology, etc.) who can come together for a college course and solve complex business cases.

We therefore used multimajor student groups in a college of business as the empirical context for our research. We discuss below the teaching and research implications of our findings.

### *Implications for Teaching*

Since SKD positively contributes to students' perceived performance and several factors seem to influence SKD, instructors must help students to effectively work in groups so that they could create synergistic knowledge. This is even more critical as organizations increasingly form cross-functional teams to deal with complex problems and expect educational programs to prepare students to deal effectively with these situations. Our research suggests that instructors could plan and implement several things in order to enhance SKD in student groups.

First, task conflict is inevitable in multimajor groups and is also a necessary element to reduce premature consensus and groupthink and to ensure that groups critically evaluate complex problems before reaching a conclusion. Yet, much high-task conflict may be detrimental especially if such conflict is not properly managed. Thus, instructors need to help students to develop ways through which they could surface task conflict and yet stop such conflict before it escalates or gets into interpersonal emotional exchanges. Instructors could pay close attention to students' deliberations in the first few meetings, monitor the amount of task conflict, and ensure that such conflict does not get into personal exchanges. Care is needed to ensure that some interpersonal issues do not exacerbate the task conflict or lead to negative personal exchanges while working on group projects.

Second, it is extremely critical that students have the knowledge and skills needed in order to increase team psychological safety. Team psychological safety helps individuals to express their own perspectives without fear of rejection or embarrassment. Also, high psychological safety is critical in high-task conflict situations. Therefore, early in the semester when groups begin the task, instructors should encourage them to create a set of norms and principles that encourage open exchange of ideas. Students need to be taught how and why diverse viewpoints could be equally valid so that they do not criticize others or feel discouraged to bring up own viewpoints. Instructors could help students to prepare a group behavioral contract (Bolton, 1999), in which the members discuss important group norms, vow to promote helpful norms, and reduce unhelpful ones. Then, the groups need to be constantly reminded about the norms that help develop synergistic knowledge and reinforce these norms regularly. Because high psychological safety is extremely critical when task conflict is high, instructors need to especially emphasize the need for developing openness norms and procedures in groups that have high-task conflict. If instructors spend a few sessions early on monitoring task conflict and helping students develop openness norms, students should be able to work effectively and deal with emerging issues during the latter part of the semester.

Third, instructors should create an environment where students frequently and intently interact with group members in the process of solving complex problems. Social interaction makes it easier to understand each other's perspectives and combine diverse views into integrated knowledge. Instructors should ask students to make a social interaction plan while preparing for group work. Such a plan, among other things, should include the frequency of group communication, how to organize group meetings, how to set group objectives and clarify roles of individual members, and how to evaluate each other's contribution and provide feedback. During the meetings, groups could be taught about process observation techniques. Each group could select a process observer who reviews the group process and provides feedback to the members. Such an observer could also make sure that the group spends quality time in discussing the group project and keeps the group focused on the task.

Finally, and more generally, instructors need to devote adequate class time in order to help students to understand the difficulties and advantages of working in groups and to develop the mechanisms necessary to engage in constructive discussion. Before students are asked to start working in groups, instructors need to emphasize the importance of developing synergistic knowledge. Students should be taught about the distinction between effective and ineffective group processes and enable them to develop mechanisms to enhance group effectiveness. However, caution is also needed not to "spoon-feed" the groups, which could reduce their creative and experiential learning. Balance is needed between instructors' specific instructions and groups' creative ideas for effective group work.

We summarize in Table 4 specific guidelines instructors could use in their efforts to helping students develop synergistic knowledge. As stated in the table, we suggest that early in the semester, instructors need to emphasize the importance of SKD and guide students in setting up their groups so that students will realize the importance of SKD and work throughout the semester to develop synergistic knowledge. We believe that the instructors need continuously to monitor the groups, reiterate the importance of SKD, and emphasize various ways of developing SKD as they work in groups.

### *Implications for Future Research*

This study focuses on students' perceptions and uses individual level of analysis to examine how perceived task conflict, psychological safety, and social interaction influence perceived SKD, and how SKD influences the perceived quality of group work. We use several streams of literature to develop the conceptual underpinnings behind our model of SKD. Since individual students work in groups or social settings, we use relevant theoretical perspectives that explain individual and group behavior in such settings. Based on the conceptual arguments and measures established in this paper, future research could examine the relationship between synergistic knowledge development and objective performance, both at the individual and group levels. Researchers could also use objective measures of the independent variables (i.e., observe the nature and extent of task conflict during meetings, established norms for the meetings, and the extent of interaction among group members). Similarly, objective measures of SKD (such as uniqueness of group decisions, complexity of group deliberations, and sophistications of arguments) could be developed and used. Instructors could also evaluate objective SKD by evaluating written project reports and their presentations.

Second, because research suggests that compared to junior-level students, senior-level students tend to engage in more constructive discussion and appreciate others' perspectives (Fritschner, 2000), another important area for future research would be to compare synergistic knowledge development across students of various stages in their undergraduate studies. A related issue for study is the impact of task conflict over an extended period of time. Jehn and Mannix's (2001) study shows that the impact of task conflict on performance varies over time. It is possible that if students have longer time periods, they will be able to appreciate and understand cognitive differences and use them for their benefits. Conversely, high-task conflict over an extended period of time could jeopardize group outcomes because the members may feel frustrated with the group process and see the group work as a waste of time. Also, groups that jump into consensus (with very short-lived task conflict) may not be able to surface diverse perspectives and therefore not develop synergistic knowledge.

Third, another interesting issue is to examine whether high-task conflict situations could actually lead to affective conflict, i.e., disagreements among group members arising from interpersonal frictions (Amason & Sapienza, 1997), when psychological safety is low. This question could be examined in a laboratory design with high and low combinations of task conflict and psychological safety and measuring affective conflict in these combinations. Similarly, it is possible that the findings

TABLE 4

Instructor Facilitation to Help Students Enhance Synergistic Knowledge Development

| | Tasks | Mechanisms/Tools |
|---|---|---|
| Emphasize the Importance of SKD *(Early in the Semester)* | Explain how companies use cross-functional teams to solve complex problems | Use company examples and student experiences to illustrate the prevalence of cross-functional teams |
| | Emphasize the need for the development of higher order knowledge for effective problem solving | Use Bloom's (1972) taxonomy of learning and discuss why analysis, synthesis, and evaluation levels of learning are important |
| | Explain how the group assignments are designed to promote SKD | Specifically relate the objectives of the group projects in the context of Bloom's taxonomy and cross-functional team problem solving |
| | Demonstrate the value of discussing and integrating multiple viewpoints in solving complex problems | Use team decision making exercises such as "Lost in the Moon" or "Subarctic Survival" to illustrate the importance of discussing diverse viewpoints in complex problem solving |
| Discuss Mechanisms for Enhancing SKD *(Early in the Semester)* | Help students identify unique knowledge and skills of individual members and integrate that knowledge | Have the students prepare an inventory of unique knowledge and skills and a plan for integrating them |
| | Explain the importance of managing task conflict | Have groups discuss ways through which they will manage diversity of viewpoints |
| | Illustrate examples of norms that may be conducive and detrimental for SKD | Having a group contract (e.g., Bolton, 1999), in which group members promise to promote norms that enhance SKD and reduce those that hurt SKD |
| | Help students develop a social interaction plan | Have the groups prepare (a) a group calendar with meeting times, due dates, etc.; (b) schedule sessions to discuss each other's contributions and give feedback; (c) specify roles in meetings (process observer, team facilitator, quality controller, etc.) |
| Monitor Groups and Provide Feedback *(During the Semester)* | Reinforce the importance of SKD and the mechanisms for enhancing it | Reemphasize the role of SKD, remind groups about the ways of developing SKD, and make yourself available for any consultation by students |
| | Check or help students to assess the level of task conflict, psychological safety, and social interaction as the semester progresses | Held on-going discussions between the instructor and the teams |
| | Keep track of task conflict, psychological safety, and social interaction of the groups and be prepared to intervene, if necessary | Observe team meetings and have conversations with team members |
| | Use students' reflections to reinforce key points | Require student groups to reflect on their group experiences (what worked, what did not work, etc.) and outcomes during the project presentation |
| Reiterate the Importance of SKD *(End of the Semester* | Listen to student groups' reflection about group processes and use the information to reinforce important points | Use selected high SKD groups to illustrate how they were able to achieve high SKD and tie back to the mechanisms discussed during the semester |
| | Reinforce the importance of developing SKD | Review the discussions made about this topic early in the semester |
| | Relate group experiences to cross-functional teams at workplace | Revisit some of the discussions made on this issue earlier in the semester, use additional examples from students |

will be different in extreme situations of high and low student diversity. Therefore, researchers could examine the effects of the independent variables in groups having very high and very low diversity among group members.

Fourth, because of our focus on individual students, we examine students' perceptions of SKD at individual level. It will be interesting to examine synergistic knowledge development at the group level by performing group-level analysis. This will be possible if objective measures of SKD as noted above are used. Researchers could also study the effects of both individual and group level variables on SKD and perform analysis at both individual and group levels and examine cross-level effects by using methods such as hierarchical linear modeling.

Fifth, future research could also examine the effects of varying group sizes on SKD. Literature suggests that groups of larger size are likely to bring diverse perspectives to the discussion (Bantel & Jackson, 1989). However, bigger groups experience increased problems in communication (Sundstrom, DeMeuse, & Futrell, 1990) and intensified cognitive conflict (Amason & Sapienza, 1997). Also, bigger groups may not be able to agree on group norms. Examination of the effects of group size on SKD will complement our understanding of factors influencing SKD. Finally, since distance education is becoming popular in recent years, future research could also examine how synergistic knowledge development could occur in distance education settings where multimajor groups may or may not be working face to face.

### *Limitations*

This study has a few limitations, which suggest that our findings should be interpreted with caution. First, all the measures are based on students' self-reports, which may not accurately reflect the realities of the group processes. While students' perceptions are important and were often consistent with anecdotal observations of the instructors who taught the course, it is important to check these perceptions against some objective measures or evaluations of instructors. Second, the measures of psychological safety and social interaction have relatively low reliability. Future research should develop more comprehensive and refined measures of these variables in order to increase the reliability. Third, because instructors shape classroom discussion and provide some guidance for group projects, the results may be different depending on the roles of the instructor in the classroom. While the instructors in our study were very similar in their approach to teaching the course (as discussed earlier), the results may not be generalizable across all instructors. Finally, since this study is based on business policy and strategy classes of one state university and only four classes were used, the findings may not be very generalizable. The extent of the influence of the independent variables on SKD may vary across institutions and the settings of the study. Our findings, however, are likely to be applicable in similar settings where student groups with diverse educational backgrounds work together to solve complex problems. The teaching implications we discussed above will be relevant in such settings.

These limitations notwithstanding, our research empirically shows that three factors influence synergistic knowledge development in student groups, and SKD enhances students' perceptions of group performance. While solving complex tasks requires diversity of viewpoints or task conflict, high-task conflict may be detrimental without having adequate levels of team psychological safety. Creation and maintenance of a team context where members feel safe to open up and share diverse perspectives without being criticized or embarrassed is extremely critical for SKD to occur. Further, the groups should engage in extensive interaction by collaborating and providing feedback to each other. Instructors need to pay a great deal of attention in helping student groups work on the mechanisms that are conducive for developing synergistic knowledge. Such help might go a long way in preparing students to effectively work in cross-functional teams that have become increasingly popular in the corporate world.

## Notes

[1] The actual survey had more questions than those presented in Table 1.We eliminated some questions because of questionable factor loadings. We retained items that had factor loading of .5 or higher.

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# Book Reviews

*Tenure in the Sacred Grove: Issues and Strategies for Women and Minority Faculty* edited by Joanne E. Cooper and Dannelle D. Stevens. Albany, NY: State University of New York Press, 2002. 252 pp. ISBN 0-7914-5302-2.

JUDITH GLAZER-RAYMO, Long Island University

In 1940, following a series of conferences begun in 1934, the American Association of University Professors (AAUP) and the Association of American Colleges and Universities (AAC&U) issued a restatement of principles set forth in the 1925 Conference Statement on Academic Freedom and Tenure. By 1969, the AAUP-AAC governing boards recognized the need to modify their original statement through a series of Interpretive Comments that reflected the growing diversity of higher education institutions and their employment policies and practices. Again, in 1989 and 1990, further adjustments removed gender-specific references from the text.[1] Underlying all of these adjustments, the definition of tenure remained basically the same as in 1940. Following a probationary period not to exceed seven years, faculty who met the institution's criteria for tenure could anticipate continuous and permanent employment, barring dismissal for cause. Staying the course during those years constitutes a rite of passage that is often made more mysterious and difficult than necessary for the junior faculty who must navigate its intricate terrain.

In this edited book, Joanne Cooper and Dannelle Stevens and their co-authors seek to de-mystify the tenure process by providing first-person accounts of their own experiences and practical strategies for earning tenure. The contributors represent several ethnicities, ranks, positions, and institutional types. Those of us who labor in the groves of academe know that tenure is much studied and debated at scholarly meetings, in journal articles, and in book-length analyses (see, e.g., Chait, 2002; Finkin, 1996). For women and people of color, it has presented a particular challenge, causing them to turn to the courts from time to time to adjudicate their tenure claims (see Glazer-Raymo, 1999, chap. 3). As the academic labor market becomes more attenuated through an increase of part-time and non-tenure track faculty appointments, the risk is great that in reforming the process and redefining the nature of faculty roles, tenure will become a market mechanism for further stratification within the professoriate. In this changing landscape, junior faculty can anticipate many challenges as they progress toward tenure. Cooper and Stevens and their co-authors know a great deal about these challenges, and in this book, they share their expertise. The book is divided into three sections: (1) the journey toward tenure, (2) faculty as individual learners, and (3) advice along the way.

The four chapters in Part I give an overview of issues confronting pretenure faculty, framing the analysis in the context of adult learning theory. Cooper and

Stevens discuss this rationale in chapter 1, as they explore how adults construct knowledge of their professional roles and the cultures in which they work. Cooper & Temple (chap. 2) apply adult learning theory in six vignettes of men and women faculty of various ethnicities, disciplines, and institutions who reflect on the problems they encountered and what they learned along the way. Bronstein and Ramaley (chap. 3) emphasize the essential acquisition of disciplinary, cultural, and self-knowledge and understanding. Focusing on a key element, the institution's commitment to diversity, Ramaley counsels pretenure faculty to recognize and resolve the inconsistencies between their expectations and the existing realities of "majority-culture institutions that ascribe to more traditional notions of scholarly productivity" (p. 37). Bronstein, her co-author, outlines the steps in constructing a faculty career during a period of institutional transition, admonishing faculty to learn the ground rules implicit in the university's mission statement and personnel policies, particularly the relative weight given to scholarship, teaching, and service. William Tierney concludes this section with an historical account of tenure as the linchpin of academic freedom (chap. 4). He outlines six problems and four solutions raised by critics of tenure policy, arguing that none of the solutions proposed by critics, for example, long-term contracts, higher salaries, or post-tenure review, offer "similar or greater protections to academic freedom" (p. 63). Instead, he suggests that graduate student socialization, performance contracts, and changes in the reward system may ultimately result in greater equity and diversity in faculty ranks.

Taking a leaf from Aisenberg & Harrington's earlier study of *Women of academe: Outsiders in the sacred grove* (1988), the authors of chapters in Part II write candidly about their experiences as assistant professors at research universities and how they learned to navigate the tenure process in their departments and institutions. Their narratives exhibit thoughtful reflection mixed with humor, frustration, and poignancy, as they relate how their core identities helped them construct themselves as tenurable colleagues in environments that were not always user-friendly. Their comments illustrate the importance of raising the awareness of faculty, department chairs, and deans about hiring, promotion, and tenure practices in their institutions. Many women and minority faculty have faced similar experiences, but these accounts of diverse intellectual journeys convey the meaning of personhood in an idealized academic community.

Women of color provide rich, thick descriptions of their journey in academia, underscoring the connections between the "personal and the political" in their professional lives. Benham and Ortiz engage in a dialogue about the politics of race, ethnicity, gender, social class, and cultural identity and how they overcame barriers to achieve prominence in their fields (chap. 5). Curry writes about the difficulties of gaining acceptance as an African-American woman with a research agenda and scholarly interests that may diverge from the norm as defined by traditional standards (chap. 8). She reflects on the conflict between acceptance of majority values and adherence to one's beliefs, and what that may mean in the tenure process. In asserting, "promotion and tenure are critical in the adult identity development landscape," she views the outcome as one of healing, reconciliation, and goal setting: ergo; there is a life after tenure! McDonough focuses on the role of the department chair and the special needs of gay, lesbian, and bisexual faculty (chap. 9). She discusses the injustices that she has witnessed "because it is legally, culturally, and religiously acceptable to be hostile, to insult, to discriminate, and to belittle our needs and us" (p. 134). This powerful statement is followed by suggestions on how to succeed in the tenure process and, also speaking from experience, the essential mentoring role of department chairs in supporting their pretenure faculty.

Part III contains practical advice on balancing scholarship, teaching, and service throughout the tenure process. I like the hands-on nature of this section, which outlines strategies for faculty across a spectrum of institutions, disciplines, and levels of expertise. Sandra Hollingsworth takes up the topic of conducting research, analyzing data, and getting into print (chap. 10), Cooper and Nojima review the scholarship of teaching (chap. 11), and Cooper and Stevens share their enthusiasm for journal-keeping as a form of reflection and personal growth (chap. 13). Foster-Fishman & Stevens provide a particularly useful entry on their participation in a Kellogg Project designed to operationalize in a meaningful way, faculty outreach activities (chap. 12). Both this chapter and Cooper-Nojima's essay base their recommendations on the paradigm developed at the Carnegie Foundation for the Advancement of Teaching one decade ago (Boyer 1990). In that paradigm, the definition of scholarship is expanded to recognize and reward four dimensions: discovery, integration, application, and teaching. This approach resonated throughout the academy but the question became one of implementation. It appears that through the efforts of faculty at Michigan State and Portland State Universities, the Kellogg Project has now developed innovative criteria and procedures for conceptualizing, documenting, and submitting for external review the scholarship of application. It provides a viable model for documenting and evaluating faculty service activities, for example, in setting up a school-university partnership.

The recommendations in Cooper & Stevens' edited book will be of particular interest to doctoral students and junior faculty as well as to their more senior colleagues and department chairs. The case studies will resonate with women and minority faculty in mentoring roles or in the throes of pretenure reviews. This well-edited, thoughtful, and serious series of essays should have a prominent place on every junior faculty member's bookshelf, a positive resource on a topic that benefits from de-mystification.

## Note

[1] See American Association of University Professors (2001), pp. 3-10, for the 1940 statement of principles on academic freedom and tenure and the 1970 interpretive comments.

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*Disciplining Feminism: From Social Activism to Academic Discourse,*
by Ellen Messer-Davidow. Durham, NC: Duke University Press, 2000.
413 pp. $64.95 Hardcover, $21.95 Paperback

BARBARA K. TOWNSEND, University of Missouri-Columbia

For those of us who were students or faculty during the late 1960s and early 1970s, reading Ellen Messer-Davidow's account of the translation of the feminist movement into the academic world of feminist scholarship and the discipline of women's studies will trigger flashbacks to the times when we first encountered ideas that would literally change our lives. Messer-Davidow's book enables us to understand now how the exciting, life-changing ideas expressed in the feminist political movement have been transformed by and within academe into dry, highly abstract academic jargon as feminist discourse transmogrified into feminist scholarship through the disciplining of feminism—turning it into an academic discipline and compelling it to follow the conventions of the academy.

In the book's introduction Messer-Davidow shares her own background so that readers can see how "the personal is political," as feminists used to say. Suffering from spousal abuse and seeking a divorce during the mid-60s, she experienced the difficulties of a system that at the time would not help a woman seeking to leave her husband. During her graduate studies in English at the University of Cincinnati, she was a community activist and became an academic activist both locally and nationally. Her activism taught her knowledge through doing, while her academic studies taught her knowledge through reading—a difference she returns to throughout the book.

Against this personal backdrop, the author, now Associate Professor of English at the University of Minnesota, sketches her goals for the book: to describe the history of academic feminism and to answer how "academic feminism [was] formed by the dynamic structures it had set out to transform" (p. 13). Her central thesis is that female studies became transformed by the academy it set out to change.

To obtain her goals, she divides the book into three parts. Part 1: Confronting the Institutional-Disciplinary Order, Part 2: Institutionalizing and Intellectualizing Feminist Studies, and Part 3: Crystallizing the Future for a total of seven chapters. The rest of the book consists of over 100 pages of footnotes and references, illustrating the thoroughness and extensiveness of her research.

The two chapters in Part 1 looks at how academic disciplines and institutions in the affected feminist students, graduate and undergraduates, during the 1950s and 1960s by limiting knowledge about women and discriminating against them as students and scholars. This time period is important for it shaped many first-generation feminists. Chapter 1, Disciplining Women, uses examples from four disciplines—physics, art history, sociology, and literary studies—to compare and contrast how organized disciplinary discourse could have the following effects: "female disciples . . . estranged from every day experiences, alienated from themselves and others, split into conflicting identities, and deauthorized as disciplinary knowers" (p. 21). Depending upon how the discipline defined what could be known and how it could be known, those within a discipline learned to exclude certain knowledge as inappropriate and certain ways of knowing as unacceptable.

Before feminists could contest disciplinary discourse, they first had to become a part of the discipline and gain credibility within it. Doing so initially meant gaining admission into graduate programs and then becoming tenured faculty members. Chapter 2, Constructing Sex Discrimination, explicates how disciplines and universities "coproduced systemic sex discrimination" (p. 48), a concept first labeled by feminists. Again using examples from physics, sociology, art history, and literary studies, Messer-Davidow describes some of the early literature on sex discrimination within the academy. She then describes how university processes maintained this discrimination and worked against efforts to implement affirmative action practices required by federal law. The chapter concludes with a look at judicial rulings on individual and class-action lawsuits that facilitated the university's authority to continue discrimating. According to Messer-Davidow, both "universities and disciplines (with a little help from federal agencies and courts) copproduced systemic sex discimination" (p. 48).

In Part 2 the author moves to an explanation of how feminist studies because institutionalized and intellectualized within the academy during the 1970s. Rooted in the initial desire to have materials to use in teaching about women and feminism so as to encourage social change, including within higher education, feminist studies grew from "female studies" (p. 87), which began appearing on campuses in the late 1960s and early 1970s. The goal of female studies was to "fuse academic knowledge with social activism and then analyze the discursive practices that launched or derailed female-studies projects" (p. 87). In Chapter 3 examples of how these projects became articulated are given for two disciplinary associations (the American Sociological Association and the Modern Language Association) and for institutions that had some of the earliest programs (e.g., San Diego State College). Always of concern was whether feminism's goal of effecting social change would be spoiled by disciplinary norms in which activism and academic knowledge could not co-exist.

As Chapter 4 demonstrates, to have a venue for developing and circulating knowledge about women, feminists turned to academic conferences and journals. Using these venues meant conformity to their conventions. Thus their existing structures formatted the shape of feminist studies within the academy. By locating studies about women within higher education structures, feminists developed an academic discipline "that fabricated esoteric knowledge" (p. 127) in the form of disciplinary discourses that had little to say and indeed could rarely be understood by those interested in participating in the political struggles necessary to change society. Women's studies programs were formed as sites for producing feminist scholarship and have proliferated in the past 30-odd years to over 600 in the United States. These programs were similarly constrained by university and disciplinary structures so that developing interdisciplinary programs became problematic and connecting scholarship to activism harmful to academic careers. By initially locating female studies in the academy, feminists found that feminist discourse became transformed into feminist scholarship.

The development of feminist studies meant changes in the discourse about women and the development of "knowledge objects" (p. 213). Chapter 5, Proliferating the Discourse, traces the factors leading to challenges to the binary conception of sex (i.e., female and male are the two sexes), the conceptualization of gender, and the incorporation of identity politics into academic knowledge through focusing on multiple identities and oppressions. Messer-Davidow primarily uses illustrations from history, literary studies, psychology, and anthropology to make her points. Her main contention is that where one was "positioned by disciplinary, identity, and political discourses" (p.191) influenced the knowledge generation and critiques that have resulted in multiple differences of perspective. To her, feminist studies has become "a disunified field with a volatile intellectual core and a discordant scholarly community" (p. 213), a situation to be expected as it became institutionalized within the academy.

In the third part of the book, Messer-Davidow compares and contrast how conservative and feminist organizations are seeking to effect change, including through the development of the next generation of leaders. Chapter 6, Remaking Change Agency, draws upon Messer-Davidow's research in the late 1980s and early 1990s about the conservative movement as she uses examples to show how conservative and feminist organizations were bringing about change during this time period. She concludes that the conservatives are better organized and more focused than the feminist groups, partly because the conservatives "have mastered the techniques of capitalization—direct-mail solicitation, endowment fundraising, and foundation support" (p. 222). She also provides examples of how conservatives and feminists are training the next generation of leaders, including a look at the Department of Woman's Studies at "Midwestern State University." What differentiates the various programs she examines in this chapter are how they respond to the shared conflict between individual goals and differences and collective goals.

Messer-Davidow returns in the book's last chapter, Playing by the New Rules, to affirmative action policies and the new rules regarding antidiscrimination. She briefly reviews the court cases from the 1980s into the mid-1990s to demonstrate how conservatives have affected thinking about affirmative action. In the last few pages of the chapter, she sets forth a few recommendations for "build[ing] the cross-sector infrastructure we need" (p. 288) to achieve societal change and concludes with a ringing challenge for scholars to use their knowledge gained in disciplinary fields (the knowledge of reading and scholarship) to effect change (knowledge for doing).

In uttering this challenge, the author makes clear to whom the book is addressed—fellow academics, rather than to community activists and the general public. In fact, the book exemplifies the scholarship whose creation Messer-Davidow has traced in the volume—esoteric, jargon-laden, at times arcane prose about complex ideas with little or no immediate application to the continuing struggle of women worldwide to change the laws and customs that treat women as unequal citizens. Readers are aided though by the book's clear organization, including effective use of headings and subheadings. Still, the book is readable only by academic audiences. Those interested in a more linguistically accessible examination of the development of feminist scholarship during the 1960s and into the 1980s should read Patti Gumport's *Academic Pathfinders* (2002) although her work focuses less on the transforming of feminist studies by the academy and more on individual feminists' scholarly paths.

*Disciplining Feminism* has other limitations. First of all, it is restricted to academic feminism in the United States. Given that there are women's studies programs and centers for gender studies throughout the world, including in Turkey, South Africa, Jordan, Europe, Great Britain, and South America (Karenmen, 2002), it would be interesting to know if the phenomenon Messer-Davidow describes in her book is true in these other countries. Also, as with many works, this book is time-bound. The research for it was completed by the mid-90s, so changes in the past few years are not documented. Another concern for those in the field of education is the lack of references to this field. Those wanting examples of the development of feminist scholarship in education, including disciplinary effects upon this scholarship, will be disappointed and must content themselves with an earlier work, *Feminist Scholarship*, published in 1985, or with works such as *Feminist Critical Policy Analysis* (1997) or *Feminist Engagements* (2001).

While Messer-Davidow focused exclusively upon the institutionalization of the feminist movement in the form of women's or gender studies, it is likely that her general findings about disciplinary effects would apply to other movements that have found a home in the academy. Black studies, also resulting from social activism in the 1960s, is facing some of the same problems as women's studies. Some critics charge it is moving away from its roots in community activism and concern for social justice (Coeyman, 2002). With both black studies and women's studies, the "institutionalization and intellectualization that disciplines all successful academic-knowledge ventures" (p. 165) has separated them from their initial activist goals. Perhaps future works that look at black studies or studies of other racial/ethic groups can build upon the ground work Messer-Davidow has done by questioning more fully the relationship between social change and academic institutionalization of discourse in the area. In doing so, they might be aided by Welch's *Sweet Dreams in America* (1996), which also addresses the chasm that can develop between those for whom social activists fight and the activists themselves as they gain power, although not necessarily in the academy.

In sum, those seeking to understand the development of feminist scholarship must read this book and those seeking to understand disciplinary and institutional effects upon scholarly areas born from social activism should read this book. It is well worth the effort.

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*Leaving the Ivory Tower*, by Barbara E. Lovitts. Lanham, MD:
Rowman & Littlefield Publishers, Inc., 2001.
336 pp. Paper $29.95. ISBN 0-7425-0942-7.

*Socialization of Graduate and Professional Students in*
*Higher Education, A Perilous Passage?*, by John C. Weidman,
Darla J. Twale, and Elizabeth Leahy Stein. Volume 28,
Number 3, ASHE ERIC Higher Education Report. San Francisco, CA:
Jossey-Bass, 2001. 118 pp. ISBN 0-7879-5836-0.

*The Graduate Grind*, by Patricia Hinchey and Isabel Kimmel. New York, NY:
Routledge Falmer, A member of Taylor & Francis Publishing,
Inc., 2000. 173 pp. Paper $21.95. PB ISBN 081533978.

CHRIS M. GOLDE, The Carnegie Foundation for the Advancement of Teaching

It can probably no longer be said that doctoral education is an unstudied area of higher education research. Beginning with the publication of Bowen and Rudenstine's *In Pursuit of the PhD* in 1992, there has been steady scholarly attention and a corresponding stream of publications. The three books reviewed here, as well as several books published in 2003, demonstrate that a literature in the field is emerging. The common scholarly task undertaken by these three volumes is providing conceptual frameworks for understanding the nature of and developmental paths taken by doctoral students.

Weidman, Twale, and Stein provide a very useful synthesis of literature on graduate education using the framework of socialization. This book takes the broadest sweep, considering graduate education at the master's and doctoral levels, as well as the professions, including medicine, law, and theology. They describe three process elements of socialization—knowledge acquisition, investment, and involvement—that lead to identification with and commitment to a professional role. The nature of identity and commitment change over time (by socialization stage). Elaborating the theoretical constructs of socialization occupies the first half of the book. It culminates with the middle chapter of the book, in which the authors review several frameworks of socialization. The important one to focus on is their own, a model that captures the complex interactions between a student (and the communities in which she is located, as well as her prior experiences and predispositions) and a graduate program. The later chapters of the book provide an overview of some of the common issues facing graduate and professional education that are pressuring programs to change. The final chapter returns to considering the core process elements and describes some of the ways in which those differ among the different broad types of graduate and professional education.

The book is a commendable contribution on several counts. The Weidman, Twale, and Stein model of graduate student socialization is likely to have some power. They review a large amount of literature and draw broadly, allowing those who think about medical education, for example, access to work on the doctorate, and vice versa. However, the authors employ and explore an almost overwhelming number of terms and categories, which are not carried consistently across chapters. For example, in the first chapter, they describe six dimensions of socialization, and translate those to graduate education. Unfortunately, they never return to these ideas, leaving the reader to wonder if the authors believe that they have power, and if so, how they map onto the ideas presented later.

Lovitts' book is a more extensive work, but it focuses more narrowly on one issue facing graduate education. Locating her work in sociological theory she produces the first extensive treatment of the problem of doctoral student attrition. She explains the invisibility of attrition (attrition rates are 40–50%) by arguing that both those inside the system, deans and faculty, and those former students who have left doctoral study, tend to place the responsibility for student exit on the departing students themselves, not on the system. More importantly, she argues that student persistence is a function of the extent to which students become integrated into the life of the department. The heart of the book is four chapters that outline the four primary reasons that students fail to become integrated and leave doctoral study: the lack of information students have about the nature of doctoral study and how to navigate this system successfully ("cognitive maps"), the absence of community, disappointment with the learning experience, and an unsatisfactory advisor relationship.

She illustrates the book with data from a study of attrition in nine departments at each of two universities. She surveyed over 800 students, both completers and departers, about their experiences in graduate school, their lives after graduate school, and, if relevant, their decision to leave. She supplemented these data with interviews with 30 departers, the Directors of Graduate Study in each of the 18 departments, and 33 faculty members in those departments. The strengths of the book are the well elaborated and lucidly explained theory of student departure. The range of data that she brings to bear is very persuasive. Not only will this book be thought provoking for faculty members and administrators working with doctoral students, but it provides a solid starting point for future research.

The third book under consideration, "The Graduate Grind," is the most explicitly critical of doctoral education and takes the least scholarly approach. Like Lovitts, Hinchey and Kimmel focus exclusively on doctoral students. They ask a different question, "We ask not why so many students leave doctoral programs, but why so many talented adults submit, most often silently, to intolerable conditions, and persevere until completing their degree." (p. 19) Lovitts grounds her explanation for the silence of students in the classic sociological theories of Hirschman and Durkheim. Hinchey and Kimmel take a critical theory approach, opting to "unravel the complexities of power" analytically. Like Weidman, Twale, and Stein, these authors describe how students adapt and change (become socialized to dominant norms and habits of mind); however, the emphasis on this book is the opportunities for damage and exploitation that powerful socialization processes create. They call our attention to complex, and often unintentional, forms of oppression exerted on many doctoral students, including marginalization, exploitation, powerlessness and violence. In particular, they describe the oppression faced by many women, students of color, older students, lesbian and gay students, and working class students.

The book is peppered with, and one chapter is devoted to, the first person accounts of doctoral students. Unfortunately, there is no description of the methods used to elicit these accounts. Presumably, they were simply volunteers who stepped forward. This does not rob these accounts of their power—the stories would make most readers wince. However, it does raise questions about their prevalence. If the goal of the book is to educate the oppressors, the off-putting tone and the methodological weakness stand in the way of getting a hearing. That said, the final chapter of recommendations, aimed both at those in privileged positions and the oppressed, offers valuable, although surprisingly unradical, suggestions. Indeed, most of their recommendations have their roots in other work, and have been advocated in many of the recent reform efforts focusing on graduate education. I must also note that several of the works cited in this book are not listed in the bibliography, a sloppiness which was very frustrating.

Several congruencies and differences emerge when the books are considered as a group. All of them are theoretically grounded; the theories of integration used by Lovitts and the socialization theories elaborated by Weidman et. al. have obvious overlaps and parallels. The critical theory approach differs because it calls these processes into questions. The Hinchey and Kimmel volume shares with the Lovitts work an assumption that students are relatively powerless and passive in the doctoral process, while the Weidman theory assigns students an active role. Nevertheless, Lovitts and Hinchey and Kimmel argue forcefully for students to become agents of change, and both books conclude with recommendations. None of the works pay much attention to disciplinary differences. Although Weidman et al. do discuss some differences, they contrast medical school with doctoral programs, and do not explore how programs in English, chemistry, education and engineering may be systematically different. Future researchers will be able to explore these, and other questions, using the frameworks and data offered in these volumes.

*Religion, scholarship, and higher education: Perspectives, models, and future prospects* edited by Andrea Sterk.
Notre Dame, IN: University of Notre Dame Press, 2002. 256 pp.

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As the editor notes on the opening page, the prospective reader may well come to this work thinking it is yet another volume on how the university is remiss. And, to some degree the book's contributors indeed bemoan the fate of Christianity (and to a lesser degree, Judaism) on the modern campus—using religion to mean both, apparently. Nevertheless, the volume is both insightful and useful, although perhaps neither completely in terms of the contributors' intentions.

The book has three parts, the first on foundational issues, the second on religion and scholarship, the third on religion and teaching. For the most part all the contributions to the book are the result of papers given at the Lily Seminar on Religion and Higher Education, composed of semiannual meetings over a period of three years. Participants were drawn from a variety of institutions—although none was from a community college—and disciplines. Most telling, perhaps, is that none of the essays is from a natural or physical scientist, and in fact, those disciplines are noticeably absent from any of the discussions about religion and higher education. In a very real sense, this volume is only a discussion of the one culture, while science, the other of Snow's (1959) two cultures, is reified in its absence. In a historical sense, science's challenge to the Christian view in the nineteenth century has not ended.

Ironically, even though the natural and physical sciences are absent, their methods are not, although by and large they are present as cause for dismissal. The essays in the first section represent philosophy, history, political science, history (again), and a humanities appointment, a range that continues in the other sections. The authors call upon graduate experience as students and teachers, and as much as anything, they argue that the 1960s brought about the decline of science as method in the social sciences and humanities, what might be called the shift from the definite to the indefinite article: not the history of religion, for example, but a history of religion. Curiously, the favorite theologian, of sorts, for these contributors seems to be Max Weber. In this regard, then, it seems that the flaw of this section is the placement of religion within the graduate disciplinary context, whose home is almost necessarily the large university. I cannot help but argue that the idea that religion and higher education will have substantial and enduring relationships at universities where the gridiron is often the largest church, is, well, unconvincing. Nevertheless, as several contributors argued, graduate education is a prime factor in the sociology of knowledge, in the creation of what we hold to be some sort of truth. Theology, then, rather than religion, arises as the foundational issue; the study of religion, not the reflective or even strident advocacy of belief, engages the first essayists.

Thus the essays in the second section pick up the theme of disciplines and their origin and re-creation in graduate education. And, the theme of what has happened since the 1960s continues, with essayists repeatedly marking the 1970s and 1980s as decades of change, as broader interpretive frameworks—such as a range of feminist perspectives–begin to have an impact on religion in higher education. One author also notes the development of more fundamentalist approaches to the study of Christianity, with less interest in the traditional orthodoxies and more interest in individuals and small groups and their conceptions of Christianity. In general, an underlying theme emerges in Richard Bernstein's essay on engaged fallibilistic pluralism. Bernstein argues that such pluralism rests on cultivated values that encourage critique and allow people to give up their beliefs, and the concluding essay calls the reader's attention to the apparent potential of that pluralism.

The third section, while hardly a comprehensive pedagogical manual, offers instructors' stories of how they have developed their teaching within the framework of their religious beliefs. The stories range from a creedal Christian perspective to a spiritual Judeo-Christian perspective, each offering a faith history of sorts, how the teacher knows religion and shares that knowing with students. None of the authors bothers with the dreadful empirical, objective knowledge of the pre-1960s yet on more than one occasion each manages to engage not only the indifferent student but also the pre-medicine major. In a very real sense, this section captures the tension of the contemporary university as the axial institution in post-industrial or perhaps the information society. The source of beliefs and conviction remains problematic, and for some if not many at moments of small truth, the source is troubling and worth being troubled by.

This book will be useful to the scholar of higher education because it provides a variety of explanations—especially in terms of disciplines and fields of study in the social sciences and humanities—of the relationship of theology and religion to higher education. Some of the contributors are assiduous in documenting the ebb and flow of the study of religion in their subject areas. It will be especially useful to professors, administrators, and students at a range of institutions essentially absent from the volume, those several hundred small liberal arts colleges (even those now buried within comprehensive universities) with denominational affiliations. Those are the institutions where local ministers argue against starting new-student orientation on Sunday, forcing faculties and administrations to confront and debate what denominational affiliation means. The debate is centuries old, as Hofstadter (1961) and Herbst (1981) documented decades ago. Unfortunately, the primary conclusion of this volume, that engaged pluralistic fallibalism has the potential to reaffirm Judeo-Christian community in higher education, has haunting echoes in the problems of tolerance in the eighteenth century college that, as Herbst (1981) shows, resulted in institutions serving no deity. I recommend this work to anyone interested in religion and higher education, with the understanding that once again there is a tendency to conflate Christianity and religion in United States higher education.

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